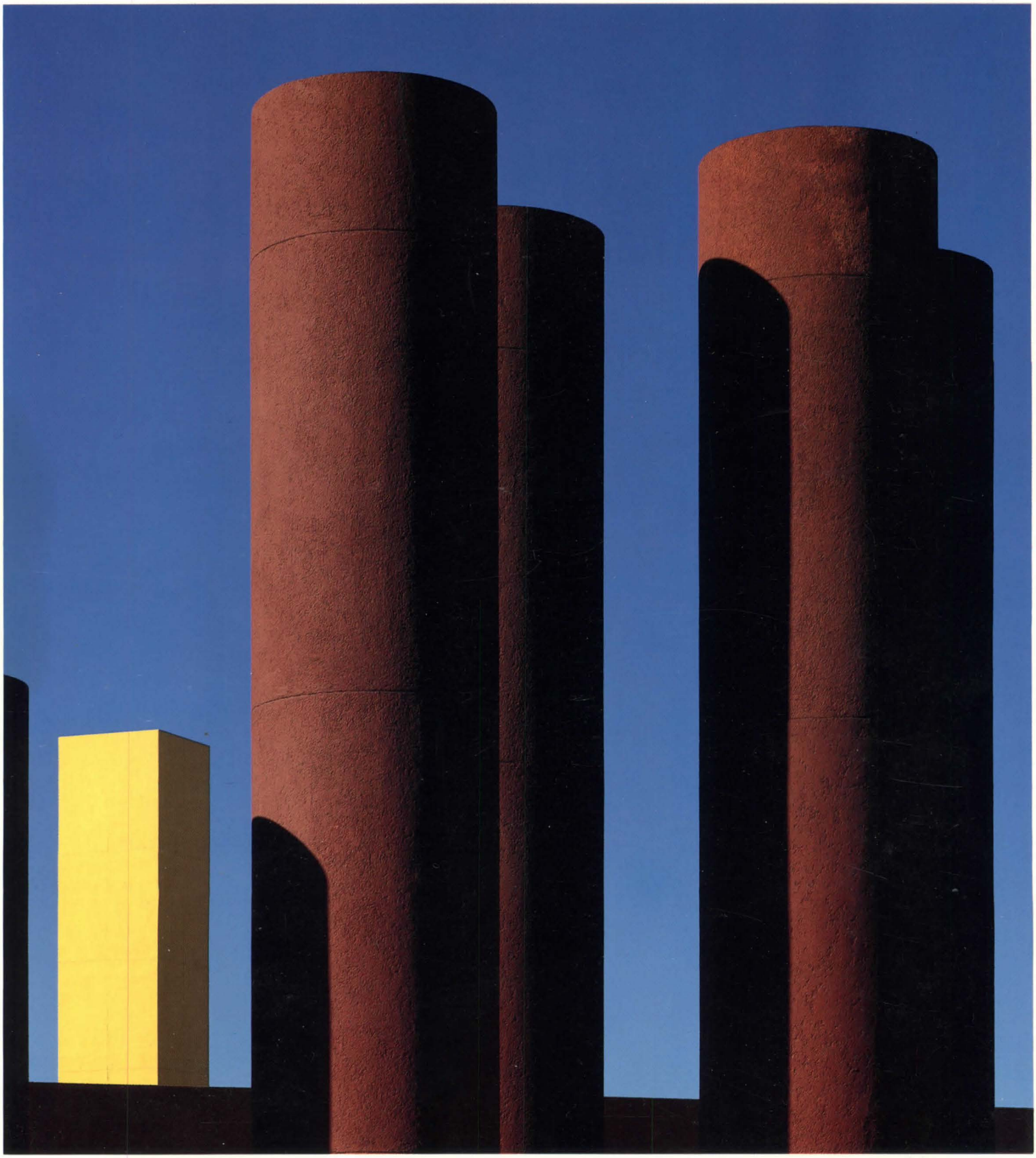
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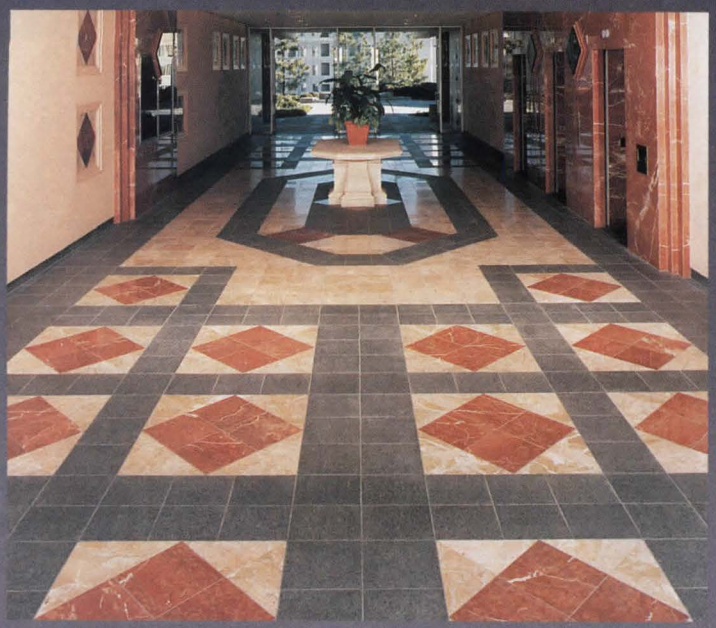
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Cover:
Partial view of pylon at highway interchange and sculpture at Solana Village Center, Westlake, Southlake, Texas (p. 65). Photo: Jim Hedrich, Hedrich-Blessing.

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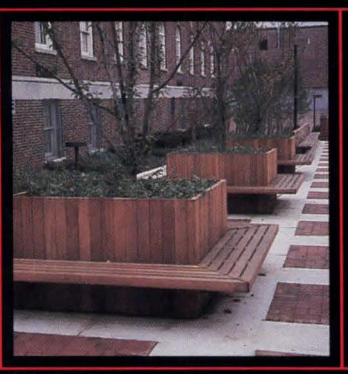
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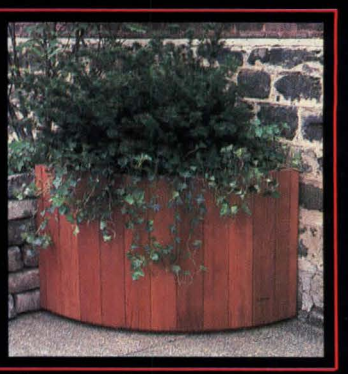
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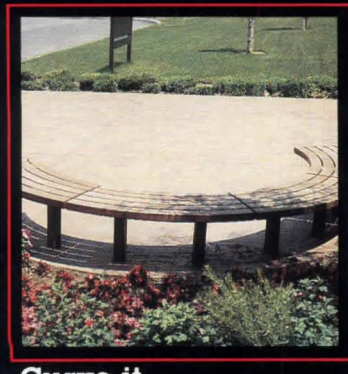
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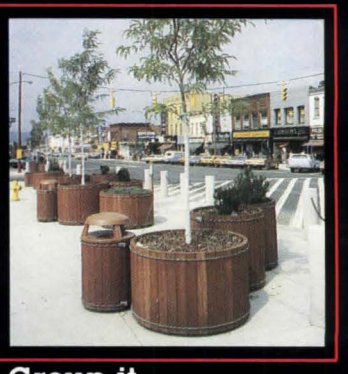
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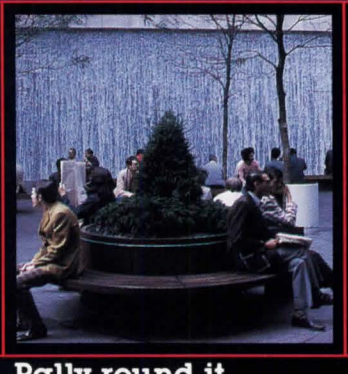
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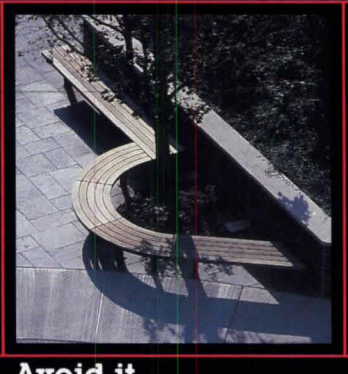
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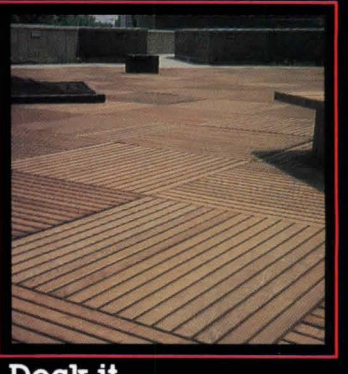
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Diversity: an American Tradition

The kaleidoscopic variety of today's American architecture is not out of character in a nation that has always resisted conformity.

DIVERSITY has been the only constant in American architecture over the past 200 years. Although most of our architects have been taught that there is one correct approach to design, there have always been others practicing at the same time with radically different design principles.

One reason there has never been a single reigning style in the U.S. is that our nation was born more or less simultaneously with the Romantic Movement in the arts, which sought inspiration in past or exotic cultures. The architects who set the aesthetic tone for the new republic before 1800 looked consciously toward the precedents of ancient Rome, while the great mass of designer/builders perpetuated quite different conventions derived from Baroque England. Within a few decades America went through phases of Greek Revival, Gothic Revival, Romanesque Revival, and other styles, all competing and all overlapping historically.

Americans, after all, were not philosophically dedicated to conformity. They came from various other countries, and many had emigrated to preserve a minority religious or political view. And this has traditionally been a land of individualists, where independence and innovation have been prized.

The size and varied geography of this country also make some contribution to the diversity of its architecture—mostly by providing a variety of settings for developing new variants. The turn-of-the-century California bungalow, once it took on an identifiable form, spread quickly across the nation; later the Revivalist Cape Cod cottage swept back from east to west, to be superseded nationwide by another California product, the tract "ranch house." In the arena of larger-scaled institutional and commercial architecture, Classical Revival influences have been strongest in the East for the past century—although San Francisco produced some great examples; for the same century, Modernism has had its staunchest advocates—its international heroes—in the Midwest, although Revivalism has thrived there as well; the West has traditionally been the source of freewheeling experiment, not necessarily in the traditions of Europe or of high architecture, and it remains so today. But any design idea that succeeds regionally is likely to be adopted—appropriately or not—beyond its region.

At certain points in our history, opinion almost coalesced around a single style or movement. For a while at the end of the 19th Century, it appeared that a kind of Renaissance Revival held sway, but even as it reached its peak in the decade following the 1893 Chicago Fair, dissident architects were creating masterpieces of Arts and Crafts and early Modern design. By the 1950s, the Modernists had established a similar hegemony, getting virtually all the major public and corporate commissions, yet the public never stopped building houses in various Revival styles, not to mention Georgian churches, hacienda-style restaurants, and so on.

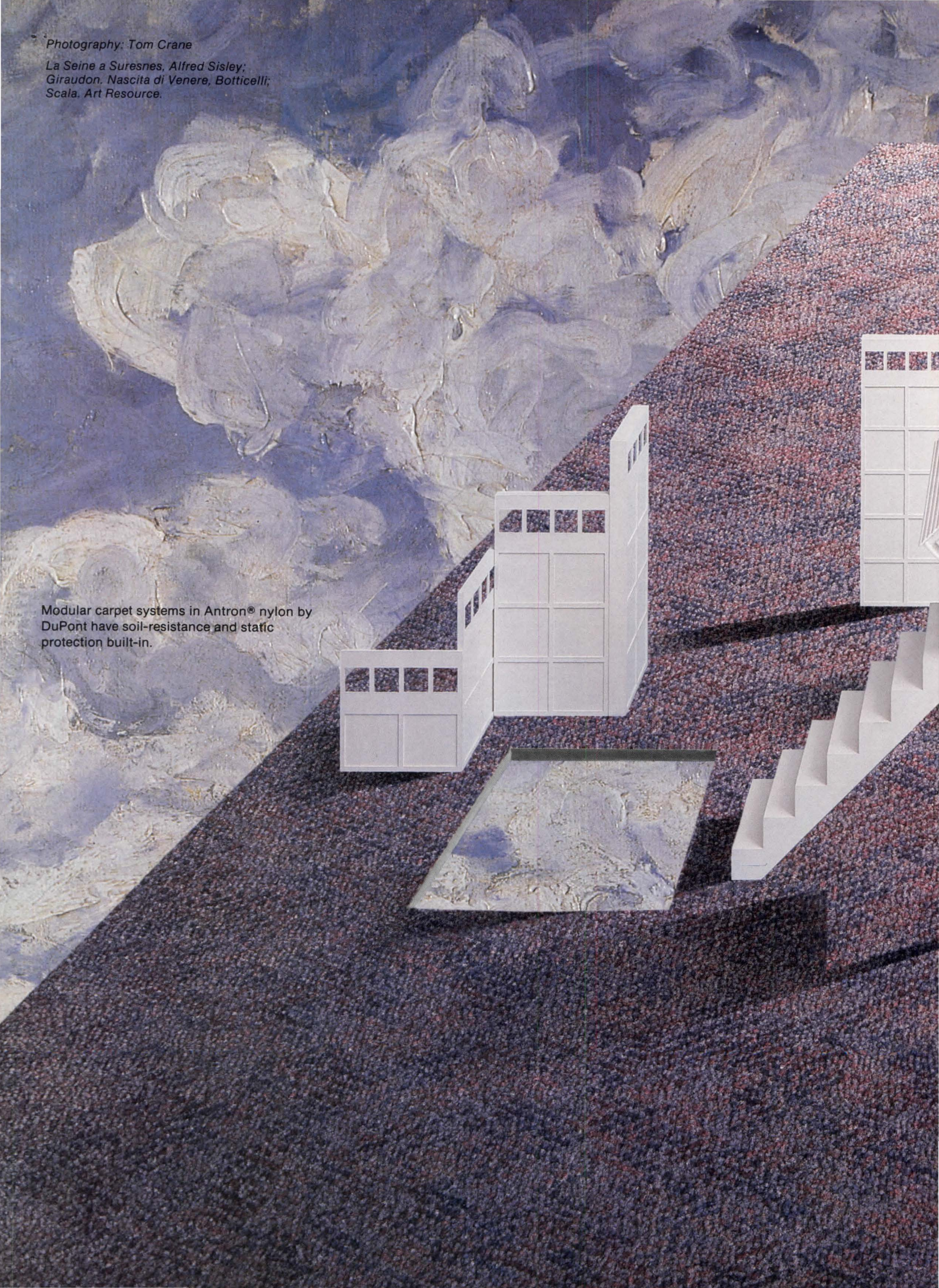
Right now, we are in a period particularly marked by diversity. Since the substantial consensus around Modernism was broken about 20 years ago, we have been working in a period when no faction seems to be able to gain dominance. The word "pluralism" has been used to give the situation a positive aspect, but most of us would be more comfortable if there were a dominant mode, however many alternatives might coexist with it.

The diversity of American design in recent decades has been widely interpreted as indicating a lack of conviction. If you deeply believe there is one right way to design, then you can hardly be happy with a pluralist situation. One could readily infer that we have a shallow, unprincipled culture when, say, a Post-Modern Classical building goes up simultaneously with a Minimalist Modern one (as in the case of the neighboring IBM tower by Barnes and the AT&T building by Johnson/Burgee in New York). But recently we have seen a few rare and surprising efforts to celebrate such diversity, as for instance in Boston's Fan Pier project, which had adjacent buildings by Cesar Pelli, Frank Gehry, and Robert A.M. Stern, among others (P/A, April 1987, pp. 35–36).

Architecture is, of course, an international art, and most of the diverse strands on American architectural thought today have parallels abroad. But America is, after all, the place where the canons of Modernism were first effectively challenged, and where they remain suspended while the rest of the industrialized world seems to be rallying again around Modernist principles.

We may not be comfortable with this current lack of a dominant direction in American architectural design, but we should recognize that this is a characteristically American condition. ■





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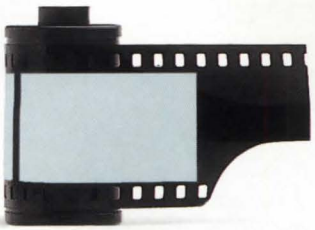
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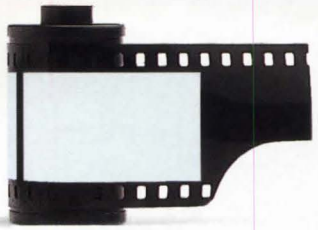
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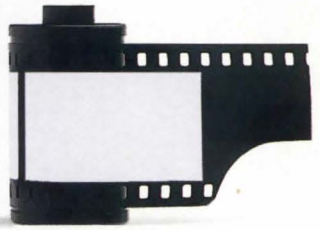
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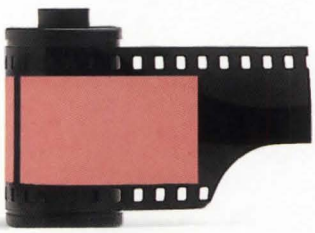
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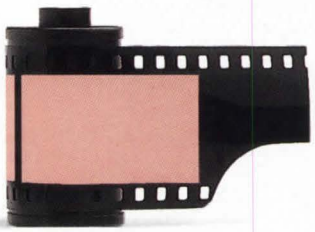
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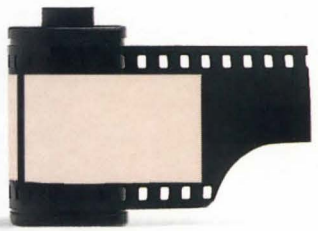
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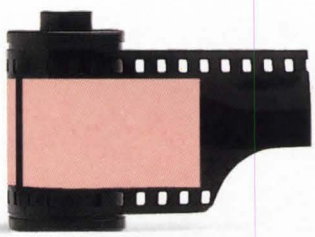
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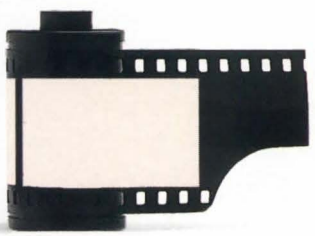
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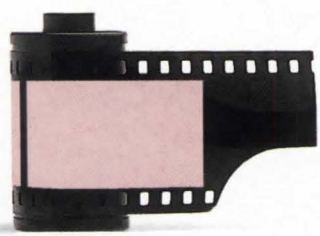
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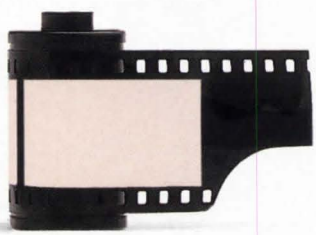
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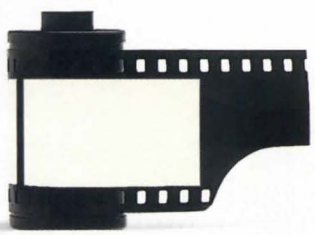
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Views

Energy: Return to Apathy
Your February Technics Topics feature, Energy Conservation Update, cast the current state of energy-conscious design in too bright a light. Most of the advances discussed were made in the glory days of energy awareness—the decade sandwiched between the Arab oil boycott of 1973 and 1983, when declining oil prices and the Reagan Administration's efforts to gut all energy convervation programs lulled us back to our pre-crisis state of apathy.

Today, the total consumption of energy in the U.S. is at an all-time high. Automobile ads no longer boast miles per gallon (try to even find a mpg figure anymore), but goad us to move up to V-6 engines and bigger cars.

Sure, energy-conserving buildings are built here and there, but my guess is most architects were never wild about energy conservation, and now that the pressure is off, are just as happy to do business as usual, as they did in the old pre-crisis days.

Three of the four energy strategies cited as examples are still too exotic to much affect the mainstream. Earth-sheltering, daylighting, radiant barriers still haven't caught on—and maybe never will. The fourth, decentralized hvac systems, is perhaps the least flashy, but most likely absorbed into the mainstream. Why? Because it least affects the way we do things.

And that's probably the key to understanding which strategies will survive—the simple, economical ones that architects can comfortably use without fear of risking reputation or worse, lawsuit. Earth sheltered buildings intrigue and make great sense in very limited applications, but they pose too many limitations to be widespread. Similarly, much as I like daylighting—it's great in houses and atria—I still believe it's too tricky to do competently where it stands to make the biggest contribution: in office environments. Even when everything has been done right, the workers prefer the quality of artificial lighting.

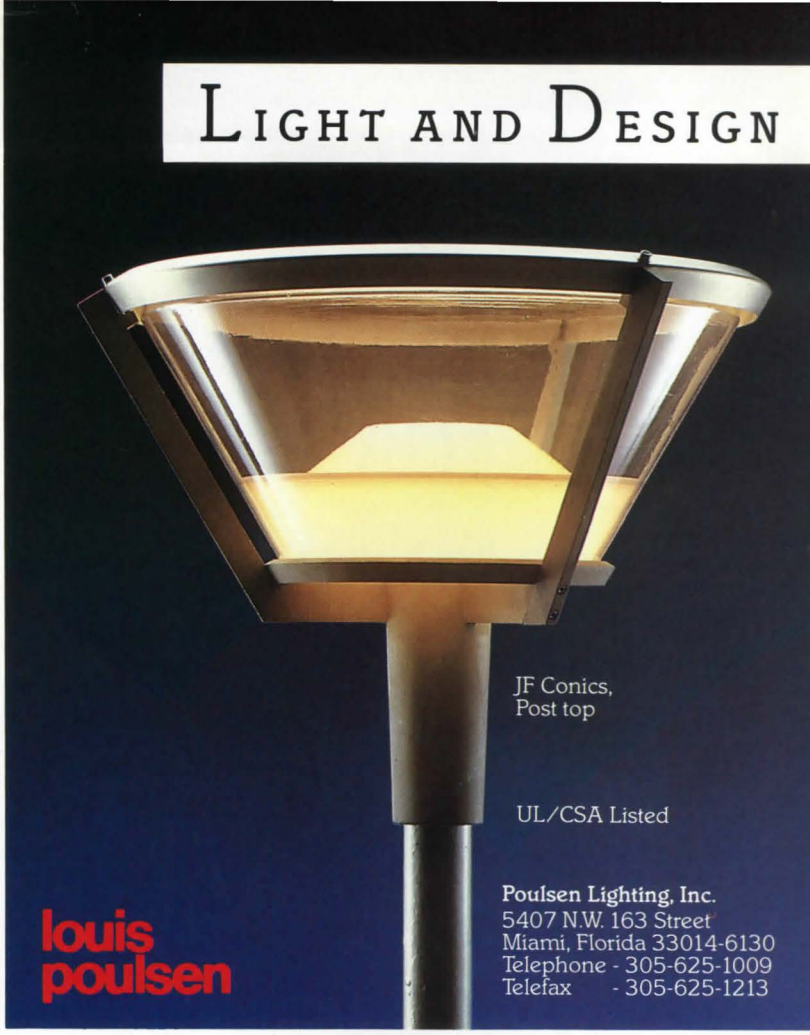
Three mundane, unobtrusive things likely account for actual progress in energy-conscious design in the bulk of today's buildings: better insulated shells, higher performance windows, and more efficient heating and cooling equipment.

But I don't blame Messrs. Selkowitz, Bryan, Carmody, Labs, Coad, and Fairey for painting too rosy a picture. They are all pioneers in their fields and view their work as a cause. Their tireless efforts at the cutting edge of energy design technology have helped move the rest of us even this far forward. They deserve our praise and attention.
Jerry L. Germer, AIA
Marlborough, NH

NCNB Credit Due
Thomas Phifer, a partner in Wolf Associates, was inadvertently omitted from the list of individuals responsible for the NCNB Plaza and National Bank (Feb. P/A, page 66). Robert G. Kellner should have been listed as principal in charge of the project for the associate architects, Odell Associates. Also omitted were Travers Associates and Central Parking Systems, both of whom served as traffic, transportation, and parking consultants.

Carpets by Architects
In the February Product feature two carpet designs were incorrectly identified. Clockwise from top left the four designs shown are by Matteo Thun; Gerhard Richter; Roy Lichtenstein, and Sol LeWitt.

LIGHT AND DESIGN



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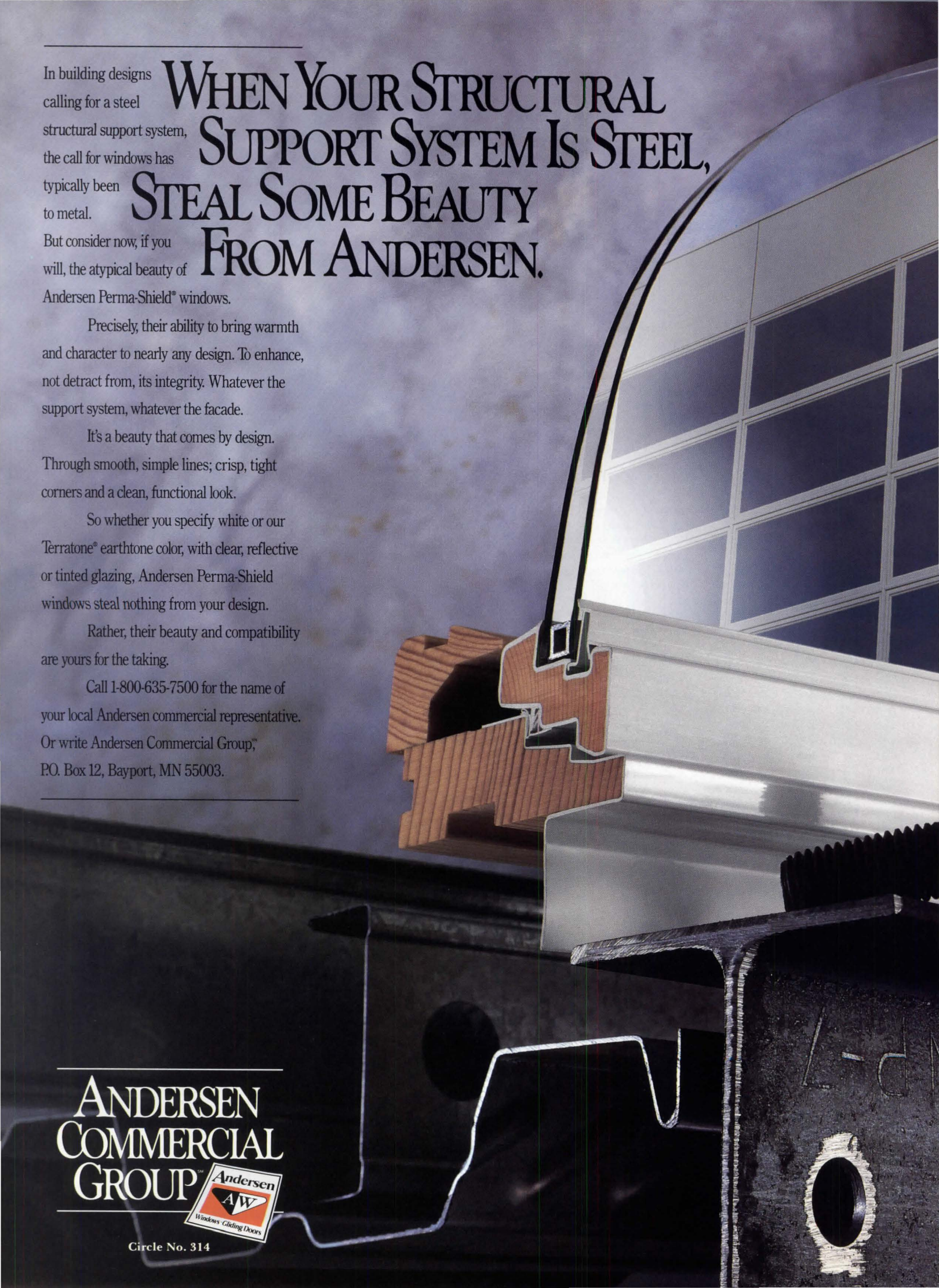
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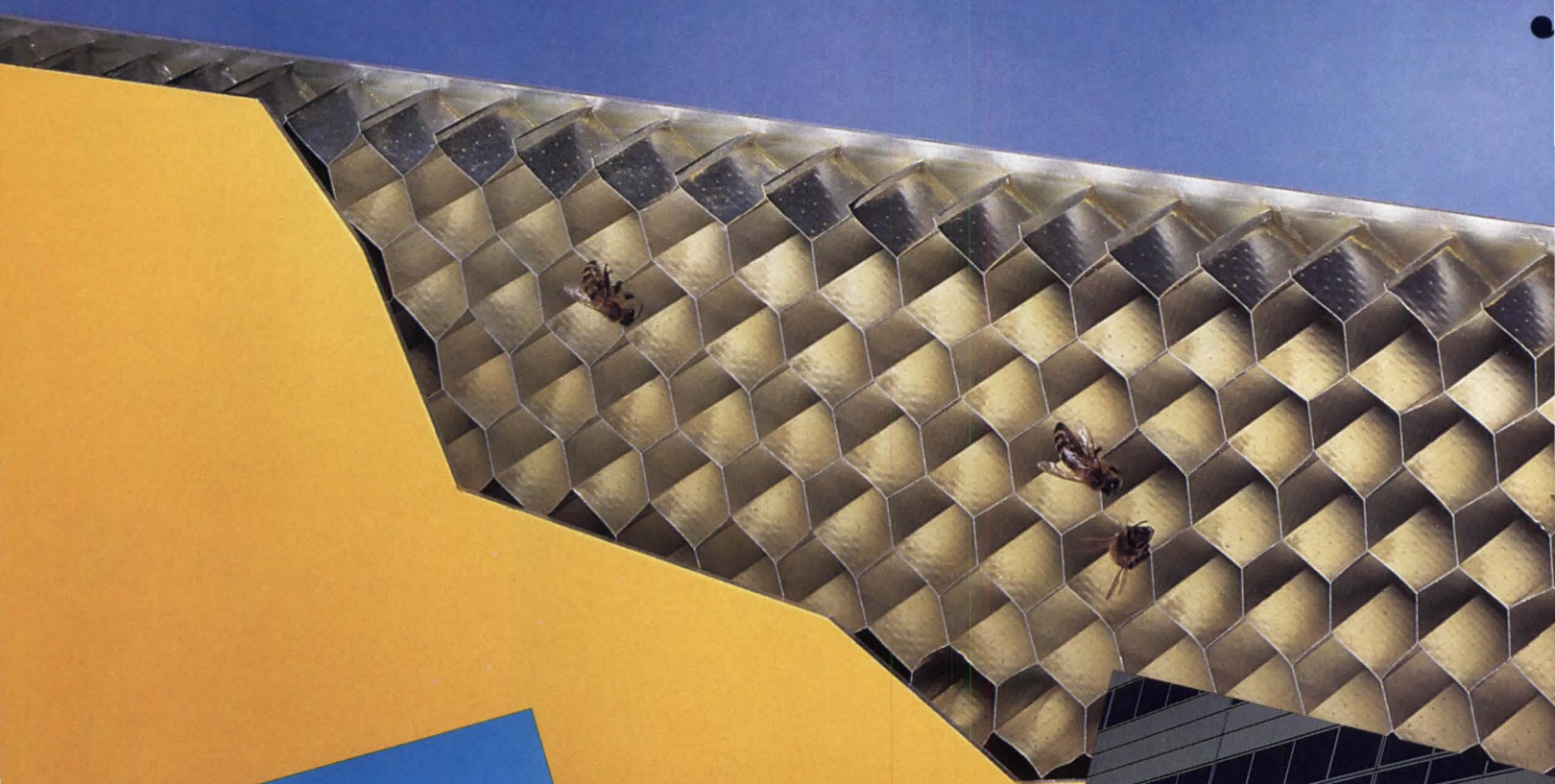
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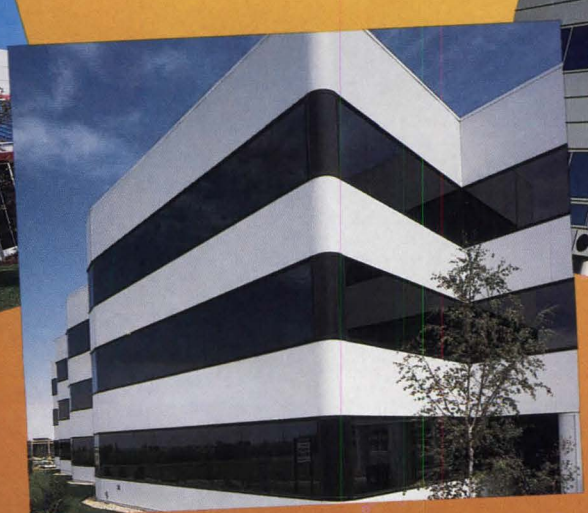
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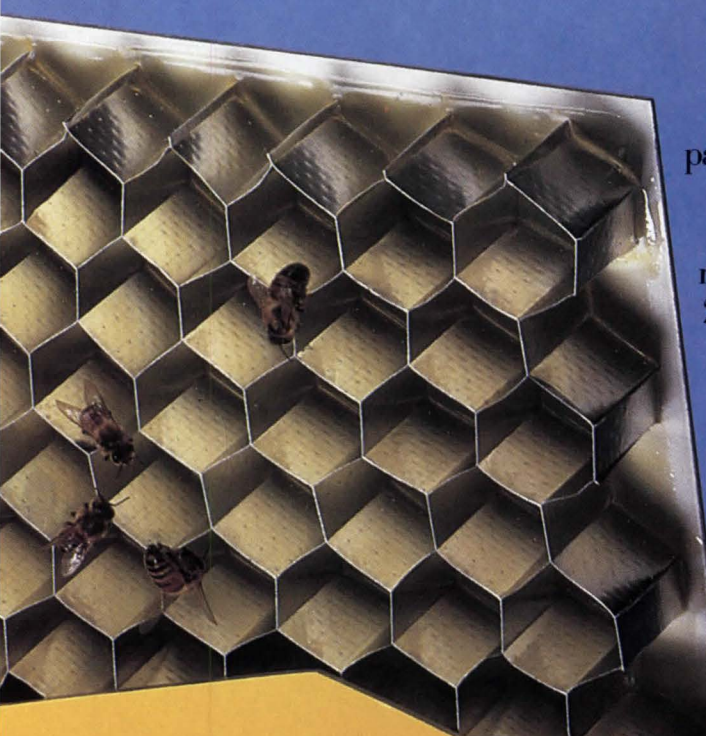








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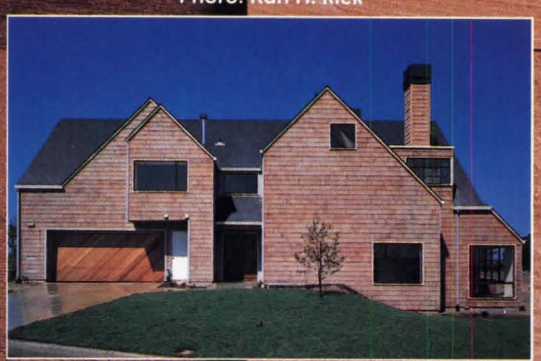
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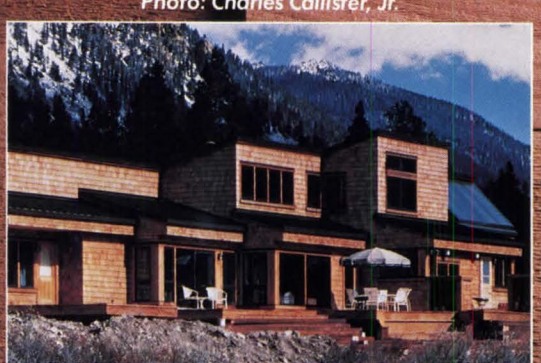
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Project: Waterfall Towers Office Park
Photo: Karl H. Riek



Architect: Fisher-Friedman Associates
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P/A News Report

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23 **Secession Building Restored**
23 **Sullivan Bank Addition**
24 **Lost or Threatened Modernism**
33 **In Progress**
41 **Calendar**



Julius Shulman

Irving Gill's Dodge House, Los Angeles, 1916 (demolished). See Lost or Threatened Modernism, p. 24.

Preservation and Modernism

In keeping with the theme of this month's feature articles on the preservation of Modern buildings (Restoring Modernism, p. 75), most of this month's P/A News Report is devoted to articles on preservation issues surrounding well-known Modern or Proto-Modern buildings, buildings by such masters as Le Corbusier, Mies van der Rohe, and Sullivan. These articles carry the word "Preservation" in their headlines. On page 24 is a photo essay of Modern buildings that have been destroyed or are in danger. Also, this month's In Progress on page 33 features new Modernist buildings. ■

More Awards from the AIA

The AIA's annual new year's spree of awards announcements continues: Three projects have been recognized by the AIA's Regional and Urban Design Committee with Citations for Excellence in Urban Design. They are Philadelphia's Fairmount Park Master Plan, by Wallace Roberts Todd, Philadelphia; Main Street at the University of California, Irvine, by Pereira Associates, a P/A Award winner (Jan. 1988, p. 125); and the Boston Urban Design Focus Team Project sponsored by the Boston Society of Architects including

(continued on page 28)

Preservation: Tugendhat House

The Villa Tugendhat in Brno, Czechoslovakia, designed by Mies van der Rohe and completed in 1930, was occupied for a mere eight years by the Jewish family that commissioned it. Thereafter, war and negligence wrought damages which—once a certain official distaste for the house was overcome—were finally reversed (up to a point) in this decade.

The organization of the Villa Tugendhat broke from the traditions of the Classical house.

(continued on page 26)



David Guise

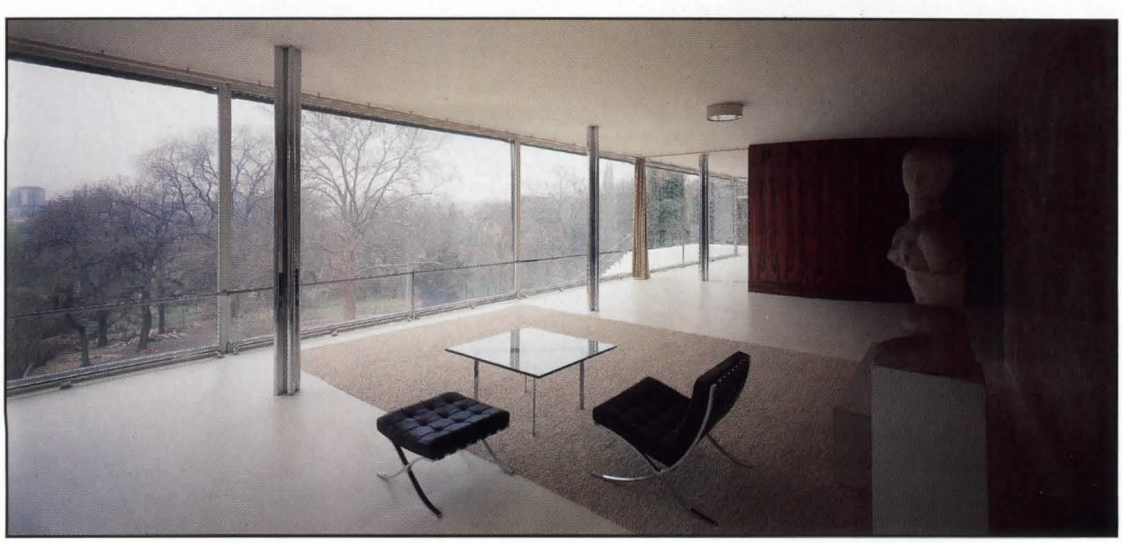
Price Tower: home for dead files.

Preservation: Price Tower Vacant

Recipient of the AIA's 25 Year Award in 1983, Frank Lloyd Wright's Price Tower in Bartlesville, Oklahoma, now stands vacant, used by its current owner to store dead records. What caused this deplorable situation and what can we learn from it?

Much of the blame rests with the building itself, which never worked very well as a combined office and apartment building. The apartment bedrooms, which overlooked dramatic double-height living spaces, were too small, and tenants had to rip out

(continued on page 26)



Pavel Stecha

Living room of restored Tugendhat House by Mies van der Rohe.

Pencil Points

Billboard Publications has purchased the publishing rights to *Architecture* magazine from the AIA; the publication will be overseen by a joint magazine board. AIA members will continue to receive *Architecture* with their membership.

Madison Square Garden in New York will not be torn down as planned, but instead will receive a $100-million renovation. The plan to build a new arena and replace the Garden with an office complex by Skidmore, Owings & Merrill and Frank O. Gehry & Associates was scrapped due to a glut of office space on Manhattan's West Side.

YRM Partnership, the London-based architecture, engineering, and interiors company, has acquired Anthony Hunt Associates, a British structural and civil engineering firm with a staff of 120.

Ricardo Bofill has received a commission to design a $39 million elderly housing complex in the Chicago suburb of Des Plaines, Ill. The Neo-Classical plan includes two 14-story towers and two six-story buildings.

Norman L. Koonce has been named president of the AIA's American Architectural Foundation, replacing new AIA CEO James P. Cramer. Koonce, a Louisiana architect, most recently was a national vice-president of AIA.

New York's first International Contemporary Furniture Fair will take place at the Javits Convention Center from May 21 to 23. The trade show, featuring American and international designers and manufacturers of contemporary furniture, will be open to the general public on May 24, with proceeds donated to DIFFA (see Calendar, p. 41).

***Cesar Pelli* & Associates has been awarded the commission to design a 188,000-square-foot building on the campus of Wake Forest University in Winston-Salem, N.C. The facility, which is to be integrated into a Georgian Revival campus, will house the university's law school, graduate school of business, and support facilities for each.**

Preservation: Corb in Context

More than 20 years after it was abandoned by its owner, Le Corbusier's Casa Dr. Currutchet (1949–1953) in La Plata, Argentina, has recently been restored and opened to the public by the Fundacion Christmann.

Commissioned in 1948 by a young surgeon, this house was the architect's only built residential work in the Western Hemisphere. Emblematic of Le Corbusier's seminal five points of architecture, the house, tucked within three party walls, was constructed over several years under the local supervision of Amancio Williams and later Simon Ungar. Once it was completed, the inability to control light, privacy, and the constant stream of curious visitors forced the owner, who refused to alter the house, to move out in 1965.

Coinciding with Corbu's centenary, in 1987, a local medical research foundation secured approval from Dr. Currutchet, now in his 80's, to lease the house, restore it, and use it as its headquarters. Two architects from Buenos Aires, Luis and Julio Grossman, were responsible for the research and restoration efforts. The Fondation Le Corbusier in Paris provided assistance with the master's correspondence and color verification. Examination of the house revealed water damage throughout, faded colors, buckled floors and walls, and oxidized metal fittings and furnishings. Rehabilitated and furnished (by Cassina) in a mere six months, the house now accommodates visitors and activities as an office for the foundation.

During the renovation deviations from the published drawings were found, including larger bathrooms to accommodate Argentine standards, a servants' spiral staircase, and lower dividing walls. All decisions had to conform to Le Corbusier's Modulor scaling system.

Interestingly enough, for all Le Corbusier's disdain for history and context, the Casa Dr. Currutchet stands now as a seamless contextual building, fully integrated to the two adjoining townhouses. It is at once a symbol of a client sacrificing his own needs in order to respect an architect's masterpiece, and a concrete example of Le Corbusier's ability to fit in brilliantly.

Warren A. James ■

The author is an architect in New York City, and is a frequent contributor to P/A.



Warren James

Casa Dr. Currutchet, La Plata, Argentina, by Le Corbusier.

Moses Considered at Columbia

As much as many architects, New York public works strongman Robert Moses (1888–1981) was responsible for translating tenets of European Modernism into American urbanism. A recent conference at Columbia University entitled "Robert Moses' New York" demonstrated that while the specifics of many of Moses's planning policies have fallen into disfavor, opinion is still divided on the merits of his autocratic methods.

The three-day conference, co-chaired by Columbia faculty members Sigurd Grava and Roy Strickland, sought to analyze the political and physical results of Moses's long and eventful career in New York city and state public works. Moses, who at one time held twelve public offices simultaneously, was responsible for most significant civic projects in New York from the 1920s to the 1960s: the public beaches of Long Island, major bridges and tunnels, parkways and expressways, and thousands of units of public housing. He accomplished all this through an incredible understanding of the political process and an extraordinary ability to seize control over that process, as was described in historian Robert Caro's 1975 book *The Power Broker*, which broadened Moses's reputation nationally.

Caro's book was a kind of centerpiece for the conference; speakers tended to side either with or against Caro's work and its allegations that Moses disregarded the interests of minorities and the poor, and that his promotion of superhighways and superblock housing had disastrous results for New York's neighborhoods. Architect Arnold Vollmer, a former Moses associate, called the book "the longest, least accurate gossip column ever written." Caro himself was given equal time the next day.



Museum of the City of New York

1936 Moses-built bathhouse, Orchard Beach, the Bronx, by Aymar Embury.

In a panel discussion, Paul Goldberger asked four current New York City officials to compare Moses's methods and the climate that produced them with today's city, observing that there was a kind of "Moses Envy" in many New Yorkers today, a nostalgia for the days of centralized power when so much seemed to get done, as opposed to today's muddle of community boards and multiple approval processes. One of the panelists, Sylvia

Deutsch, director of New York's Department of City Planning, responded with the flat assertion that there is "nothing in Moses's method that is or should be part of the planning process today," although even she was reluctant to say that the ends of Moses's work did not justify the means.

Robert A.M. Stern offered one of the most interesting lectures, an assessment of Moses's architectural legacy and its uneasy relationship to Modernism. While Moses embraced Modern planning, and spread its gospel throughout the country, the architecture he commissioned (and shaped) was of a more consciously monumental character, as in the Jones Beach complex, Lincoln Center, and his many public swimming pools. Moses told his designers—most often architect Aymar Embury, engineer Othmar Ammann, and landscape architect Gilmore Clarke—that public architecture was not for experiments, and that they had "a public obligation not to stand for the cutting edge." The major exception to Moses's rejection of Modern architecture was his public housing, the endless grids of cruciform towers seen throughout New York, arguably his greatest architectural and social mistakes.

The conference did little to move the historical and planning communities any closer to a consensus regarding Moses's legacy; too many of the people who know the most about Moses were too close to the battles that surrounded him to evaluate him objectively. But the fact that there is such uncertainty as to whether such a fundamentally undemocratic leader was a good or bad influence indicates a real dissatisfaction with community input in planning decisions. ***Mark Alden Branch*** ■

Preservation: Secession Success

The Secession building in Vienna has had a varied lifeline. Built in 1898 to the design of Joseph Maria Olbrich, it has had layers added by numerous players, including Josef Hoffmann, Oesterley, and, in the 1960s, Ferdinand Kitt. Recently, in 1985–6, Adolf Krischanitz carried out a comprehensive renovation, carefully preserving the original Olbrich form of the exterior, the basic plan, and much of the best interior details. He also reconfigured some of the spaces in order to accommodate larger exhibitions as well as theatrical presentations, and in doing so reiterated some of the architectural themes in contemporary ways, notably by the use of color.

On the façades, damaged stucco surfaces were repaired, as were the various profiles, cornices, lettering, and mortar joints, following the original design as seen in 1898–9 photographs. The entrance steps and flanking pedestals with vases were repaired, while the damaged cast stone turtles were remade in bronze.

The renovation of the wrought iron dome was particularly difficult. Only through enlargement of old photographs was the assembly of the bay leaves, stems, and berries revealed and the pattern of gilding (stripes on a yellow background) clarified. Olbrich's broad palette of greens, on the underside of the leaves (as well as in the entrance foyer) was carefully studied and recreated.

Inside, the treatment was freer. The entrance hall was reconstructed, and some of the early motifs, since lost, were not reproduced—Hoffman's plant motifs in stucco, for example, and Koloman Moser's glass rosette window.

Perhaps the most interesting transformation took place in the basement: Earth was excavated in the middle of this floor, making room for a special Klimt Room incorporating the reconstructed Beethoven-Frieze.

Overall, the color is carefully orchestrated in a scheme conceived by Krischanitz and Oskar Putz. The exhibition rooms are light in tone and employ a wide range of grays; the entrance foyer uses numerous greens; the underside of the main staircase is picked out in light turquoise; while the new café-bar is conceived as a strongly colored counterpoint to the more neutral spaces. ***Susan Doubilet*** ■

The author, a former P/A Senior Editor, is a freelance architectural writer.



Margherita Krischanitz

Restored Secession Building, Vienna.



Jayne Merkel

Sullivan's People's Federal Building. Owner-designed addition at right.

Preservation: Sullivan S&L

A timid, faceless new addition to Louis Sullivan's 1917 People's Federal Savings and Loan in Sidney, Ohio inadvertently represents the current banking crisis the way the Sullivan banks originally symbolized a time of prosperity in the Midwest. The character of the new building is as different from the old as conditions today are from those that gave rise to the elegant, stalwart Sullivan banks, even though Sidney is still holding its own and the People's Federal is solvent.

The addition is just an ordinary small town savings and loan office, with a garish, off-the-rack, pseudo-Victorian beveled glass front door, slate-look linoleum floor, and copper standing seam McDonald's Mansard roof. If it is shocking, it is because the board of directors and retired architect Ferdinand Freytag have maintained the grand old bank so lovingly over the years.

In January of 1987, the bank asked architects Freytag & Associates about converting the late 19th-Century Werst Building behind it to offices for the personal financing division. But before they could develop a plan, they were told their services would not be needed. The officers decided to design a new building themselves with a local contractor. The Werst Building was demolished, and a banal new one-and-a-half story box was constructed in its place.

The exterior is totally without ornament. Instead of a rich mix of deep natural colors, the new building is a pallid gray with walls made of random length limestone blocks formed with precast concrete panels. The low-ceilinged interior is glaringly lighted by incandescent lamps, sconces, chandeliers, and ceiling fixtures.

Some effort has been made to respect the Sullivan bank. The new building behind it maintains the street line, and the precast panels are aligned with Sullivan's sculptured stone and ceramic tile bands. Still, complaints have been leveled by the Architects Society of Ohio, Robert Zwirn, Chairman of Miami University's Department of Architecture, and architects and critics around the country.

The protests are born of frustration with one more instance when architectural services are not valued, even by the custodians of a masterpiece with National Landmark status, a building the owners celebrate on their check books, pass books, matchbooks and promotional literature. ***Jayne Merkel*** ■

The author teaches writing at the University of Cincinnati and writes about architecture for Inland Architect *and* Art in America.

Preservation: Lost or Threatened Modernism

We are in the process of losing some of the major landmarks of Modern architecture in this country. They generally do not qualify for listing on the National Register of Historic Places, with its requirement that a building be at least 50 years old. At the nadir of their popularity, they also have few people advocating their preservation. And of those programs that do recognize the work of our recent past, such as the AIA's 25 Year Award, very few have any power, save public opinion, behind them.

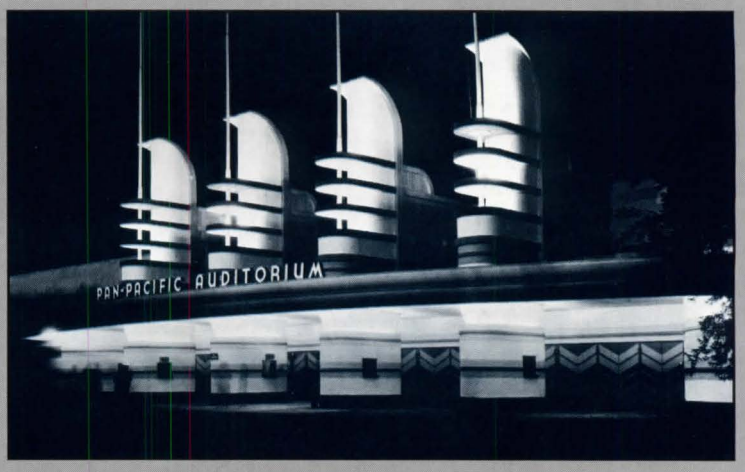
Just as the rebellious child must one day protect the parent, so too must this profession, freed from the strictures of Modern architecture, now act to preserve that from which it just won independence. Every delay can be counted in terms of the number of landmarks lost.

On this page are some examples of the many Modern landmarks that have been lost or are now threatened. ***Thomas Fisher*** ■

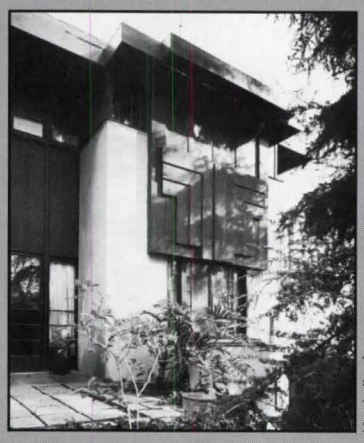


Art Institute of Chicago

Chicago's Reliance Building, an important early high-rise designed by Burnham & Root, is threatened less by outside forces than by the poor condition of its terra cotta façade, which is cracking and is tenuously attached to the building frame. The city government has pledged $2 million to help finance restoration. Still, the costs involved in restoring the two great terra cotta walls may be more than the building's rental income potential will justify.

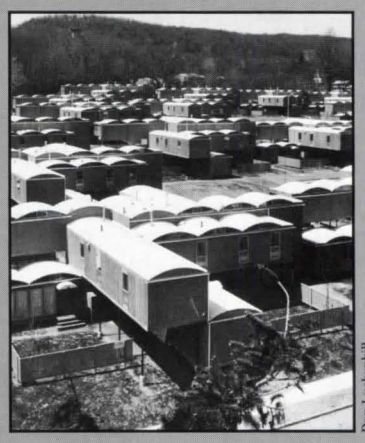


Built as a temporary pavilion for an auto show in 1935, the Pan-Pacific Auditorium was used for sports events, conventions, and concerts over the years. It has suffered from neglect since it closed in 1972. While protected from demolition by Los Angeles landmark designation, the building's future in terms of renovation and use remains uncertain.



Marvin Rand

R.M. Schindler's Lowes House in Los Angeles was built in 1923, making it one of his earliest designs as an independent practitioner. A good example of Schindler's use of bold, stuccoed forms offset by redwood trim, the house was demolished for a freeway.



Don Luckenbill

The Oriental Masonic Gardens housing development of 1968, in New Haven, Conn., was Paul Rudolph's largest built experiment in prefabricated modular design. The complex, intended for low- and moderate-income families, was dismantled in the 1970s after complaints and vandalism by residents.



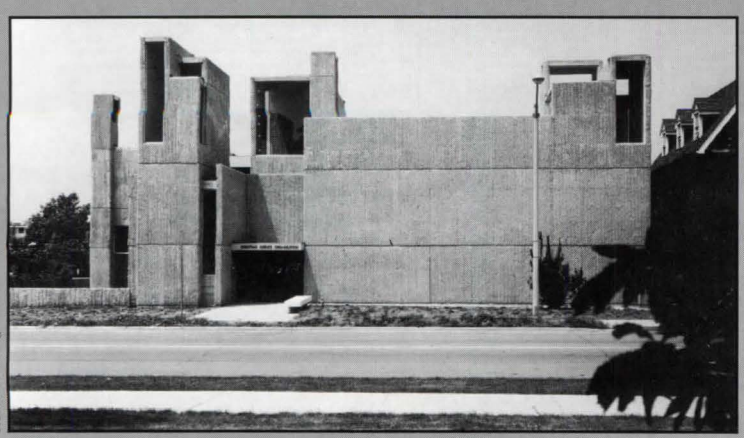
Daniel Rothenfeld

The unusual Bond Department Store in Cleveland, Ohio, was designed by Walker & Weeks, a firm noted for its Beaux Arts-inspired work, and was completed in 1947. It was demolished in 1978; the site became a plaza in front of a SOM-designed tower called National City Center.



Edward Teitelman

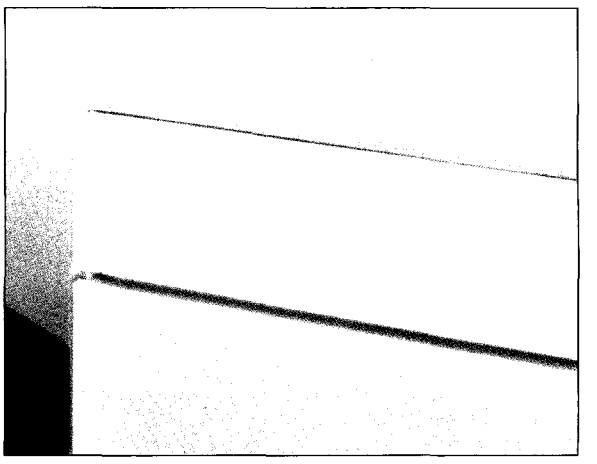
Paul Rudolph's Christian Science Building at the University of Illinois-Urbana (left) was hailed for its manipulation of space and scale when completed in 1966. Sited on a prominent corner lot, it was demolished last year to make way for a multistory apartment block.



Hedrich-Blessing

The American Federation of Labor Medical Service Plan Building, Louis Kahn's only downtown Philadelphia building, was torn down in 1973, having survived only 17 years. The reinforced concrete building, one of Kahn's early experiments with "served" and "service" spaces, was demolished for a highway.

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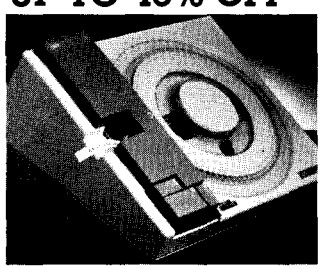


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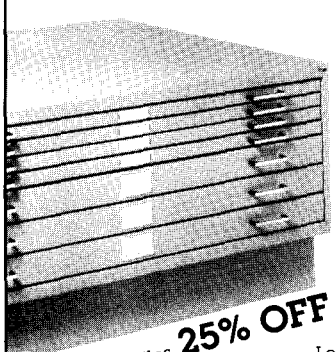


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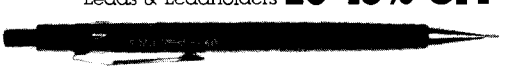
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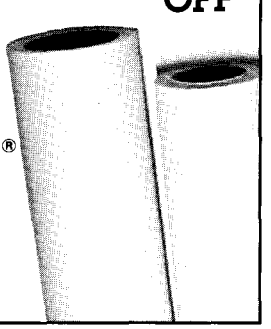
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Price Tower *(continued from page 21)*
partitions to create one sufficiently large sleeping space. Among the elements that still remain in the building, the stairs to the mezzanines are too steep, with risers higher than their treads are wide. The trash chutes are too narrow to accept trash bags easily. The office quadrants are too tight and incapable of being combined because they are separated by the bearing walls supporting the tower.

The Price Company, original owners of the building, eventually converted all of the apartments, except the Price family penthouse, to office space. Still the building proved difficult to operate. The magnificent vertical copper louvers, expressing the double-height spaces, do little to stop the fierce afternoon sun from hitting the two-story-high glass walls. The horizontal louvers do a better job, but because most of them face north and east, they make little contribution to the control of the interior environment. Also, the building's original cooling plant could not cope with the heat gain, and its initial location could not accommodate new equipment, so replacement machinery had to be placed in an add-on parking lot.

The major reason for the tower's abandonment, however, is the single exit stair that serves the entire 19-story building. Although it is an open, exterior stair, it nevertheless presents an unreasonable safety risk. Harold C. Price had to meet with the mayor to get the original plan with its single stair approved by the building officials. But the tower's new owner, Phillips Petroleum, which bought the building from the Price Company in 1981, have decided that the liability associated with the continued use of the offices is simply too great. The company carefully maintains the building's exterior and the top-floor apartment, but uses the rest of the tower for storage.

The Price Tower is not endangered; its current owners treat it with reverence and pride. But considered unsafe for human occupation, its future is certainly cloudy. Ironically, the tower's abandonment comes at a time when the codes are becoming more flexible in allowing alternative safety measures for historic buildings in lieu of strict code compliance. The fact that such alternatives have not been sought for the Price Tower suggests that it is more a symbol of a town as it is a building to be used. For architects, let it remain a symbol of what happens when form ignores function.

David Guise ■

The author, an architect in New York, is preparing a book in which a discussion of the Price Tower is one chapter.

Mies *(continued from page 21)*
One entered at the top floor, the bedroom level, and descended via a semi-circular opaline-glazed stairwell to the reception rooms on the main level. Here, principal areas were differentiated by freestanding screens, including an ebony-clad semi-circular one around the dining area, and were defined on the perimeter by continuous windows looking out to the gardens. On the exterior, the horizontal sweep of this main level was given primary expression, as the bedrooms were set back within generous terraces.

After 1939, most furniture not taken by the fleeing Tugendhat family was sold or ruined by later occupants. One user, a German aircraft design firm, replaced the opaline glass of the stair tower with an "energy-saving" brick wall, raised the fireplace height to make room for a new heating system, built an extension on the terrace, and cut two windows into the basement wall. The Germans then left after most of the living room windows fell out following an air raid. Later, Soviet soldiers billeted in the house burned some of the bookcases and ruined the linoleum with their horses.

Many problems impeded the preservation of the house, which by the 1950s was owned by the city of Brno. Even if suitably skilled craftsmen could be found (and they could not, given the precision of the original work); even if money could be earmarked (and it was . . . eventually); the question still remained locally: Why do it? After all, the Villa had never been popular in Brno, designed as it was not only by a German but by one so accommodating as to replace a Communist, Hans Meyer, as director of the Bauhaus. Furthermore, the house smacked of excessive luxury, not to mention avantgardism, both of which qualities made the CSSR regime distinctly uncomfortable.

Finally, a suitable function was found for the building—as a reception house for mayoral functions; and in 1981, the work was begun.

First, the original heating system was replaced. Then, the terrace outbuilding was removed, the new basement win-

(continued on page 28)

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Mies *(continued from page 26)*
dows filled in, the fireplace returned to its original height, and the semicircular dining screen rebuilt and reclad in ebony. The stair tower and main level were reglazed, but not to the original high standard. And, unfortunately, many elements that could have been retained and refurbished, such as the original bathroom tiles, sinks, bathtubs, and faucets, were replaced. Other intact elements—the onyx screen wall, stairs, window frames, built-in closets, and door hardware—have been preserved. Overall, the Tugendhat preservation was done with a broad brush, and one can only be thankful, in the circumstances, that while certain details were lost, the general outlines are restored. ***Susan Doubilet*** ■

The author, a former P/A Senior Editor, is a freelance architectural writer.

Awards *(continued from page 21)*
guidelines for the Rowes Wharf project (P/A, Jan. 1988, p. 47), a civic design review commission, and the "Boston Visions" design competition (P/A, Jan. p. 21).

Charles Moore has been selected as the winner of the 1989 Topaz Medallion for Excellence in Architectural Education, which is awarded jointly by the AIA and the Association of Collegiate Schools of Architecture. Moore, who has taught at Princeton, Yale, UCLA, and Berkeley, is currently a professor at the University of Texas.

The AIA has also selected seven recipients for Institute Honors, which recognize contributions by institutions, projects, and people (usually non-architects) to the practice of architecture. The only project cited was Battery Park City in New York (P/A, Jan. 1984, p. 136; July 1985, p. 79; July 1986, p. 100; March 1988, p. 86). The American Academy in Rome was recognized for its educational function, and carpetmaker V'Soske was cited for its collaborative design program, which has included such architects as Michael Graves and Richard Meier.

Individuals receiving Institute Honors were furniture designer Niels Diffrient, Ridgefield, Conn.; RPI architecture dean David S. Haviland, who wrote the AIA's Architectural Handbook of Professional Practice; New York high-rise engineer Leslie Robertson; and Harvard professor Eduard Sekler. ■

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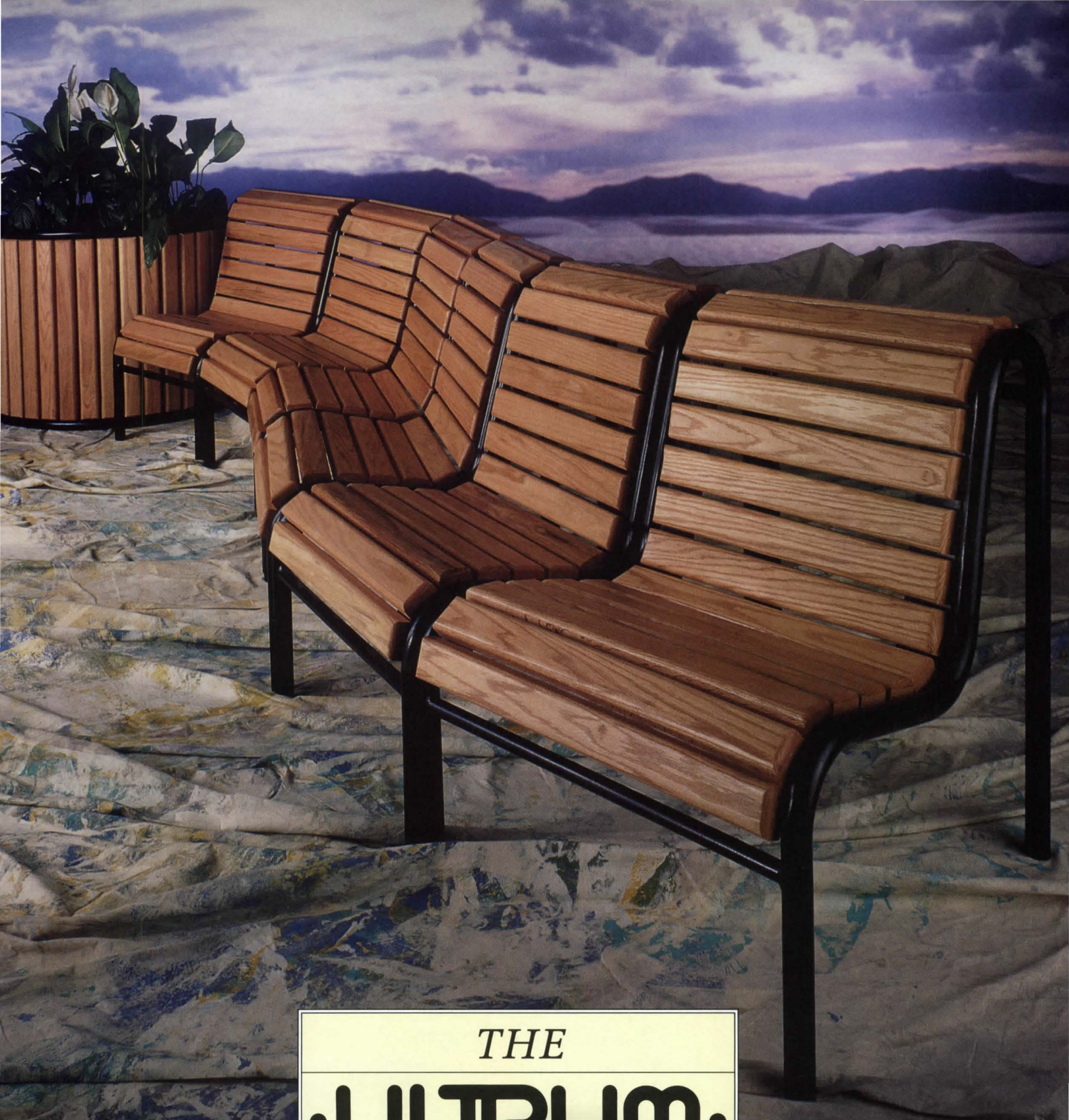
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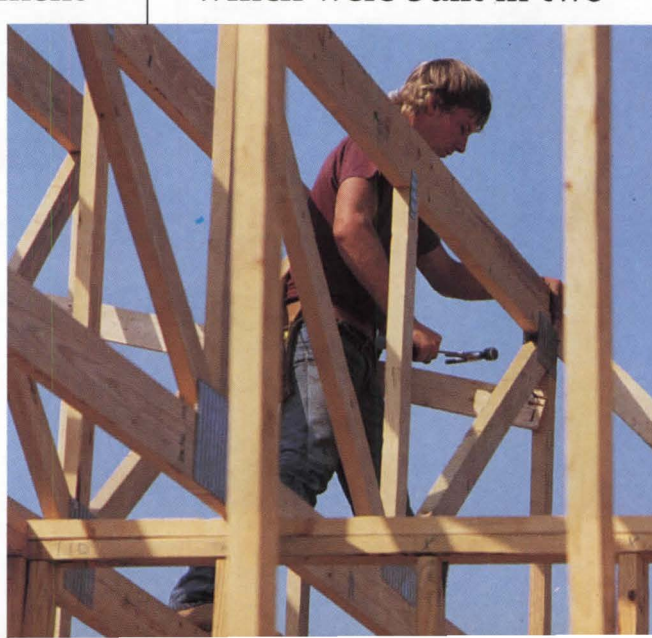
When Marriott Corporation switched to engineered wood systems for their Courtyard Hotel near Washington, D.C., they saved about $100,000 in materials and labor costs — about 10% compared to the firm's previous masonry and steel design.

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Donald Wroble, construction manager on the project, said the wood system provided better soundproofing than masonry and steel. And the only special acoustical materials used were a one-inch gypsum-based underlayment (Gyp-crete) over the plywood deck, and special caulking to insulate wall openings cut for electrical and mechanical lines.

The 78,600-square-foot, three-story structure was designed to incorporate several engineered wood systems.

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alconies and decks.

Wall sections were pre-
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ould be done more effi-
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Construction moved forward on schedule, Wroble said, even in freezing and inclement weather that would have shut down concrete placement.

The exterior walls of the structure were finished with a textured, stucco-like coating; the finished roofing is fiberglass asphalt shingles. The entire building is sprinklered and has a one-hour protected fire-resistive rating.

The 78,600-square-foot Marriott Courtyard is the company's first example of this configuration in East Coast markets. It is the forerunner of 190 similar hotels Marriott has said it intends to build nationwide over the next few years.

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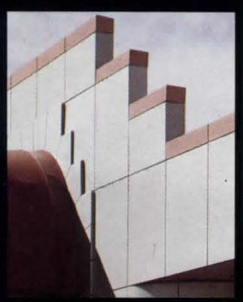
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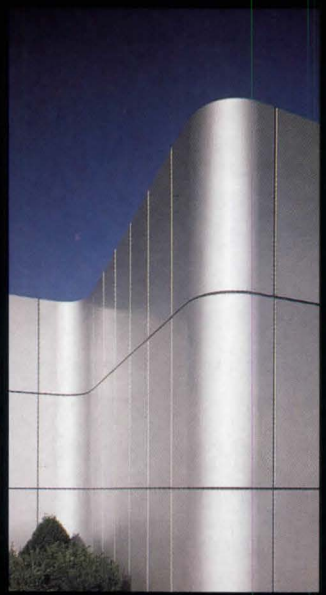
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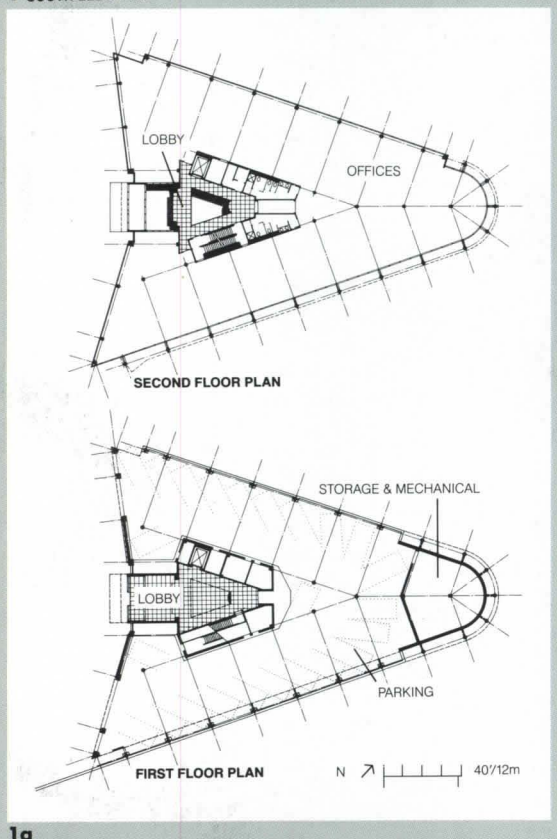
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In Progress

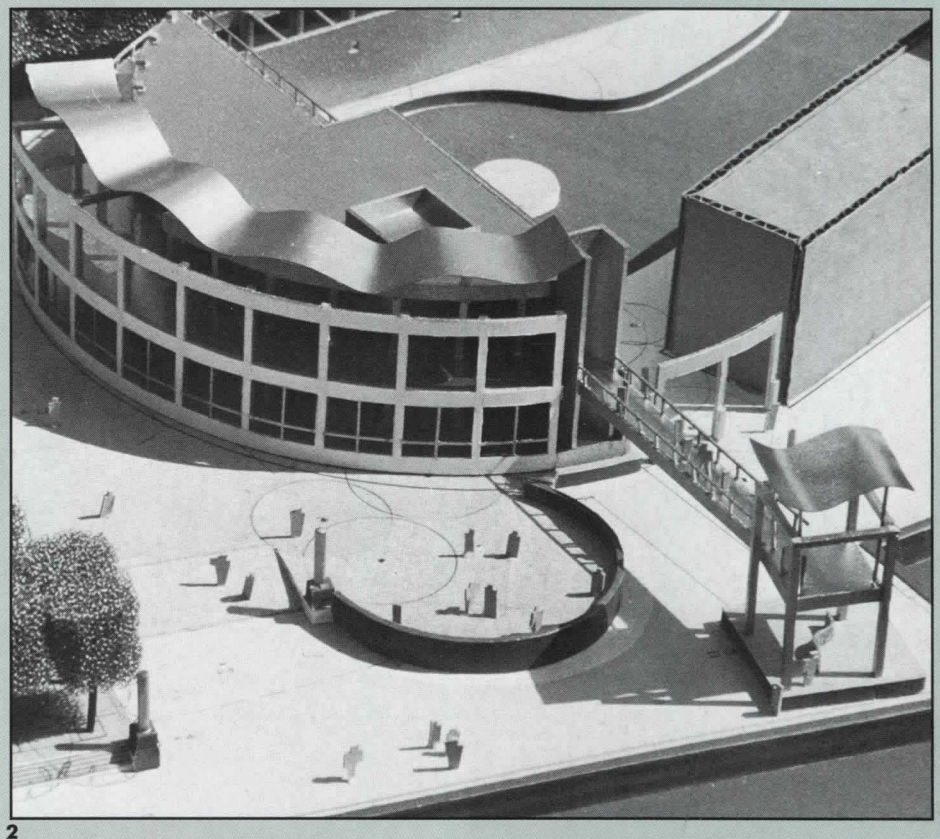
Six projects that employ modern vocabularies are featured this month. *Andrea E. Monfried*



1 SOUTH ELEVATION



1a

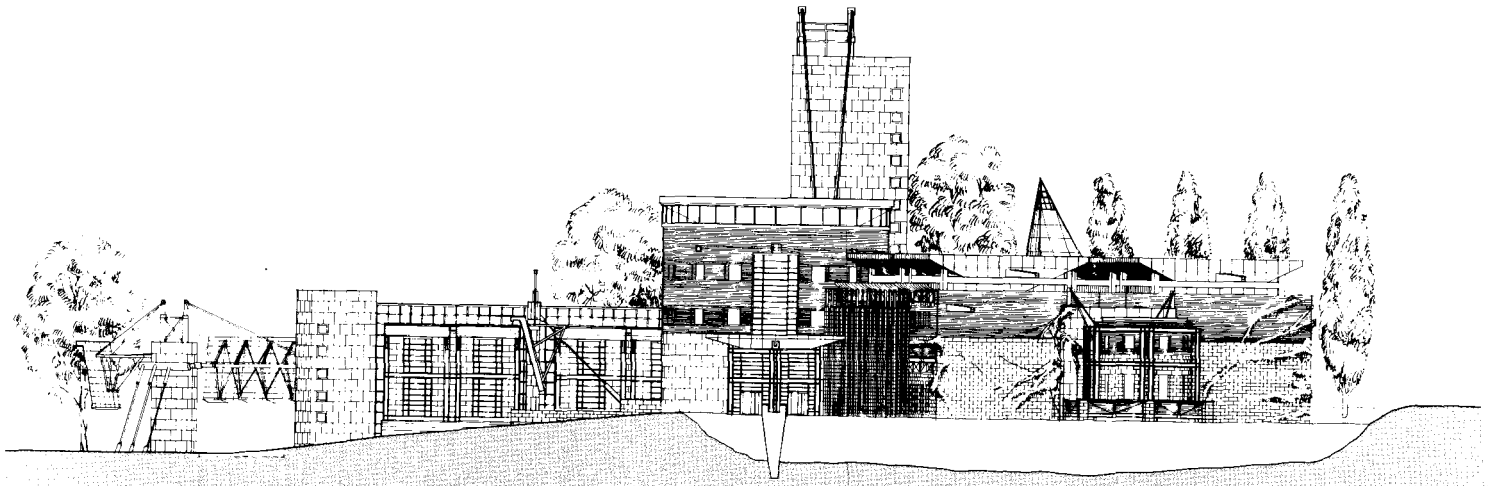


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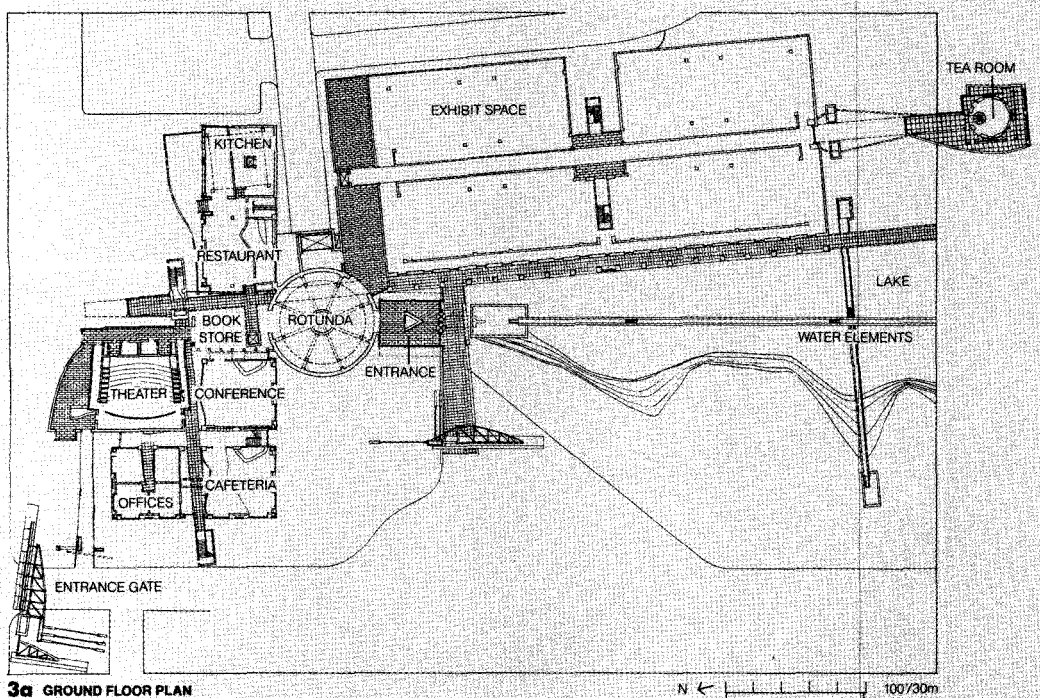
1 Apple Hill Executive Office Center, Tewksbury, Mass. *Architects: Koetter, Kim & Associates, Boston.* This building was defined, in large part, by its location between two heavily traveled highways. The sleek horizontality of the façade is emphasized by metallic glazed ceramic tile with stainless steel and painted metal trim. Sunshades wrap around the prow of the building and continue along the south side, while underneath a sign employing laser beams is calibrated to move at 55 mph along an earth berm. The pedestrian entrance and the service core are reached from the west façade, scaled to the entry function instead of to the highway.

2 Battery Park Concession Building, New York. *Architects: The Ehrenkrantz Group & Eckstut, New York.* This 15,000-square-foot structure includes support services for Battery Park and two restaurants for park visitors. The perforated metal wave-form roof is echoed in a kiosk, located under the steel observation tower; a ground-floor outdoor dining area encircles visitors. The exterior walls will be glass, metal panels, and concrete. An existing Coast Guard building, as well as a tunnel vent, are incorporated into the composition. Completion is scheduled for 1992.

(continued on page 34)



3 SOUTH ELEVATION



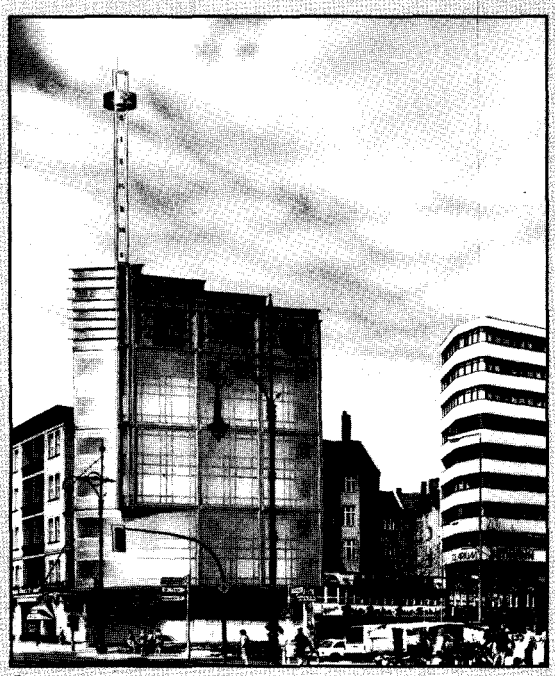
3a GROUND FLOOR PLAN

In Progress *(continued from page 33)*

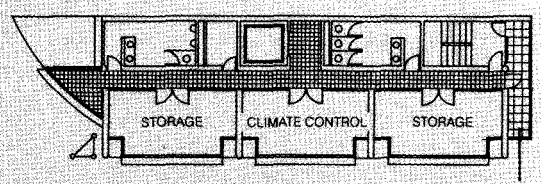
3 Pacific Institute of Natural Sciences, Ashland, Oreg. *Architects: BOOR/A, Portland, Oreg.* This building will serve as a scientific center for Southern Oregon State College and other research organizations. Four two-story exhibit halls that border a lake will showcase ecosystems found in the Pacific Northwest. The remainder of the L-shaped structure houses public rooms, a bookstore, theater, and a tower with a series of observation platforms. A three-story rotunda is the central focus of the building, serving to direct circulation. Several "arms" extend over the lake, one leading to a tea room, two others creating a waterfall which mimics those of the Cascade Mountains.

4 Ku Damm 70, Berlin. *Architect: Murphy/Jahn, Chicago.* This very narrow office building fills a corner site in downtown Berlin. The ground floor front is even with the façades of neighboring buildings, while the rest of the structure is cantilevered, following the line of the sidewalk. The structural core of the building, abutting its neighbor to the west, is made of concrete; the rest is steel and glass. The curved face of the second and third floors is completed by a canopy suspended over a side entrance. On the upper floors the corner is square, punctuated with a spire containing radio broadcasting apparatus. The top has been slated for high-visibility advertising signage.

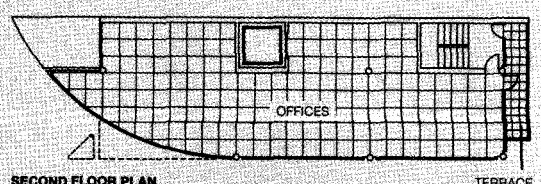
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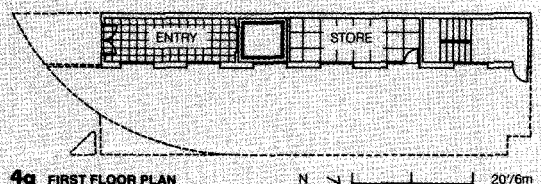
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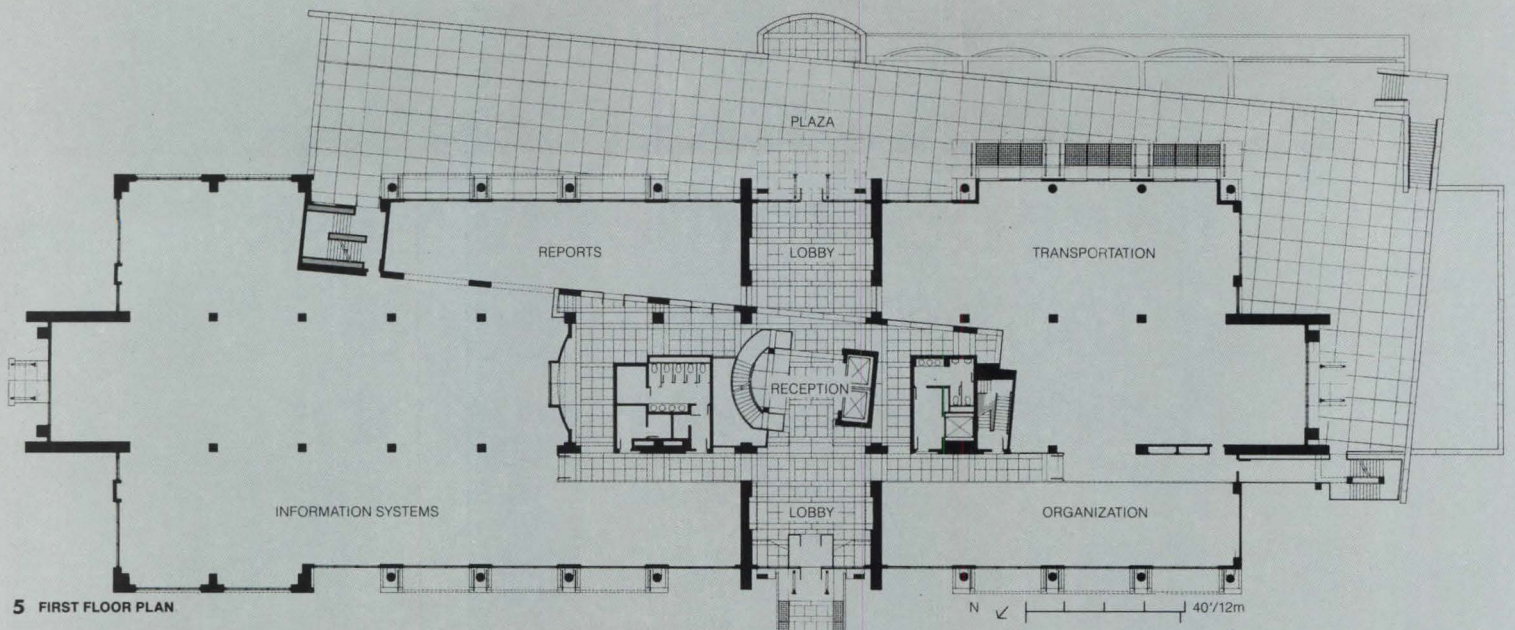
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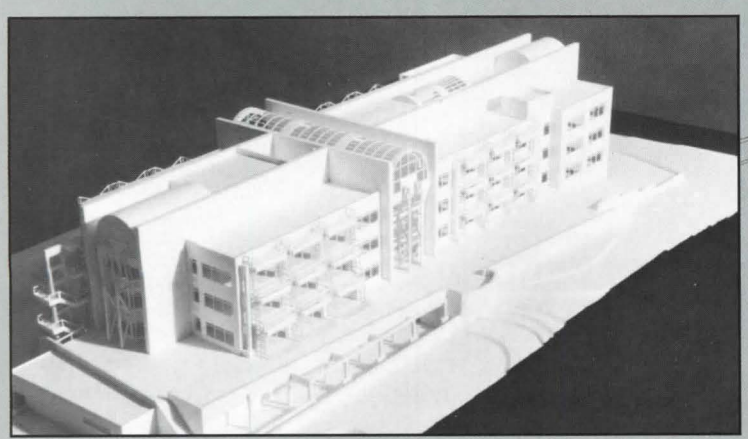
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5 FIRST FLOOR PLAN



5a

In Progress *(continued from page 34)*
5 Headquarters, Int'l Assoc. of Machinists and Aerospace Workers, Prince Georges County, Md. *Architects: Joseph Boggs Studio, Washington, D.C.* The skin of this building is made of silver-colored metal panels with painted tube steel and curved stainless steel screens. A grid of vertical granite planes divides the building into quadrants; a superimposed diagonal system directs circulation. Between the stone slabs are skylighted atriums.

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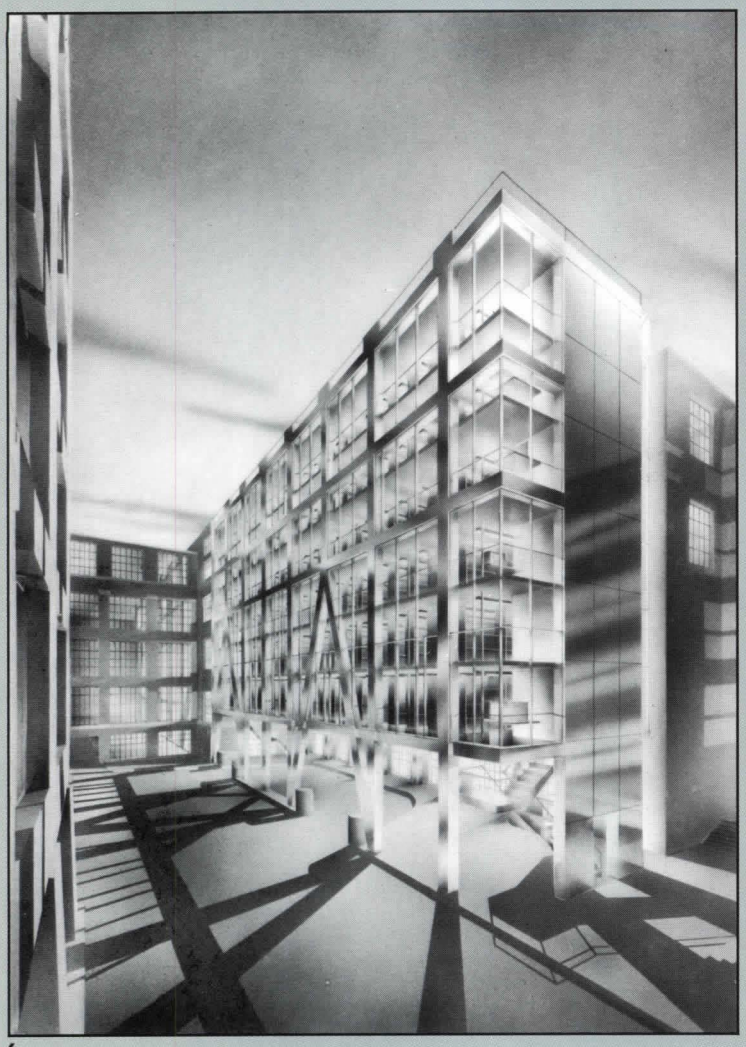
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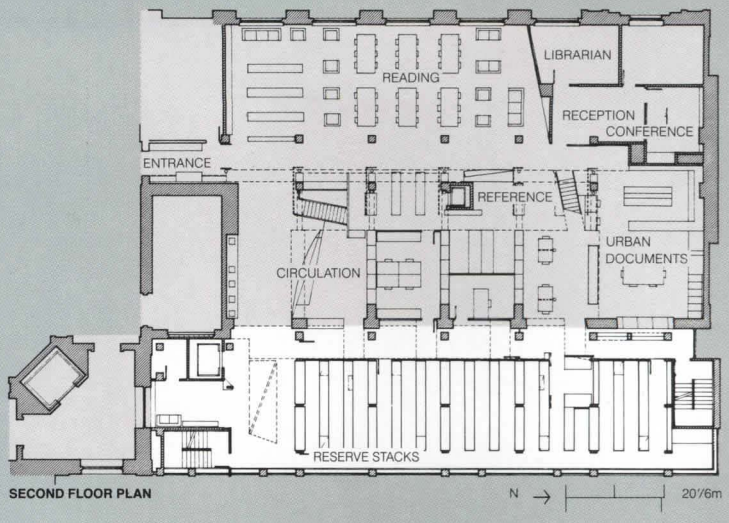
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6



SECOND FLOOR PLAN

6 Expansion, Architecture and Planning Library, Massachusetts Institute of Technology, Cambridge, Mass. *Architects: Schwartz/Silver, Boston.* In order to accommodate the School of Architecture and Planning's expanding book collection, the architects added a 30-foot "slice" containing book stacks to the back of the existing library. Because the site fronts on the main vehicular courtyard, a structure was developed that allowed truck access. Steel trusses support inch-thick steel ribbons which hold up concrete floors; the floors hang separately from the UV-blocking glass skin. The interior of the adjacent 1938 Welles Bosworth building is being reconfigured to adapt to the addition, on which construction is scheduled to begin in late spring or early summer.

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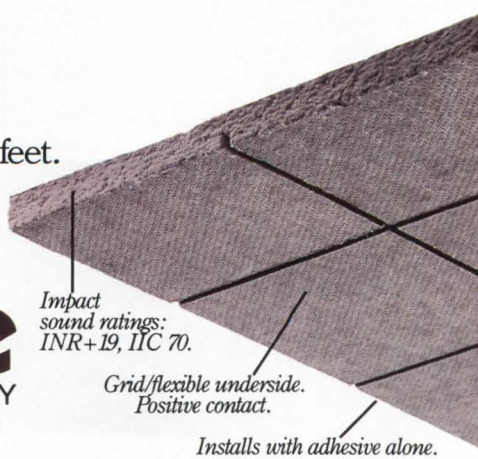


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P/A Calendar



Gary Tetley

Continental Building by William Ittner, from "A Tall Heritage: St. Louis Skyscrapers" at The Forum May 5–31.

Exhibitions

Through April 23
The Language of Wood. American Craft Museum, New York.

Through April 28
Greene + Greene, photos by Marvin Rand. Kirsten Kiser Gallery, Los Angeles.

Through May 10
Dwight Heald Perkins. Gallery 400, University of Illinois, Chicago.

Through May 13
New Projects by Architects: Ricardo Bofill, Zaha Hadid, Arata Isozaki, Rem Koolhaas, Bernard Tschumi, others. Max Protetch Gallery, New York.

Through June 25
Good Offices: The Seventh Arango International Design Exhibition. Ft. Lauderdale Museum of Art, Fla.

Through June 26
Louis Kahn in the Midwest. The Art Institute, Chicago.

Through July 22
Inigo Jones: The Complete Architectural Drawings. The Drawing Center, New York.

April 13–June 10
Hani Rashid and Lise Anne Couture, Studio Asymptote: Los Angeles West Coast Gateway. 2AES, San Francisco (P/A, Feb., p. 22).

April 25–May 12
Peter Walker: A Selection of Recent Landscape Projects. Harvard Graduate School of Design, Cambridge, Mass.

May 5–31
A Tall Heritage: St. Louis Skyscrapers 1892–1931. The Forum, St. Louis, Mo.

May 7–July 16
Architecture Tomorrow: Morphosis. Walker Art Center, Minneapolis.

Competitions

April 28
Entry deadline, PC GlassBlock® Design Awards. Contact Pittsburgh Corning Corp., 800 Presque Isle Dr., Pittsburgh, Pa. 15239.

May 26
Registration deadline, Peace Garden Design Competition. **Submissions due August 25.** Contact Paul D. Spreiregen, Professional Advisor, Peace Garden Design Competition, P.O. Box 27558, Washington, D.C. 20038-7558 or call Christine Cestello, Project Manager (202) 337-2887.

May 29
Entry deadline, Design America Accessible. Contact Beverly Sanchez, U.S. Architectural and Transportation Barriers Compliance Board, 1111 18th St., N.W., Suite 501, Washington, D.C. 20036-3894 (202) 653-7834.

August 31
Entry deadline, A Moment in Building Photography Competition. Contact National Building Museum, Pension Building, Judiciary Square, N.W., Washington, D.C. 20001.

June 1
Entry deadline, Third Annual Excellence on the Waterfront Competition. Contact Susan Kirk, Waterfront Center, 1536 44th St., N.W., Washington, D.C. 20007 (202) 337-0356.

Conferences

April 20–22
Louis Sullivan and the Architecture of Democracy, Grinnell College, Grinnell, Iowa. Contact William Deminoff, Secretary of the College, Grinnell College, Grinnell, Iowa 50112

April 21–22
Building the Modern City: the Poetics of Landscape and the City, Precedent to Present. Contact Iris Miller, Director, Landscape and Architecture Studies, Catholic University of America, Dept. of Architecture and Planning, Washington, D.C. 20064 (202) 635-5188.

May 5–8
American Institute of Architects Annual Convention, St. Louis. Contact AIA, 1735 New York Ave., N.W., Washington, D.C. 20006 (202) 626-7300.

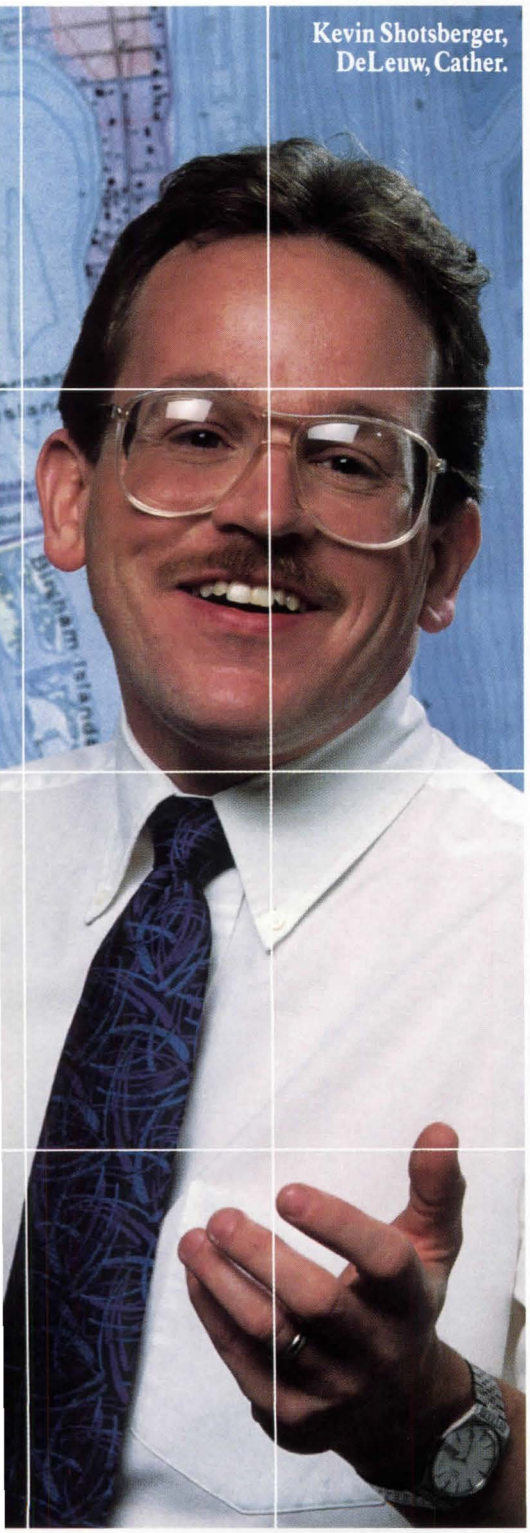
May 9–11
Envisioning the Future: International Facilities Expo 89, International Design Center, Long Island City, New York. Contact IDCNY Satellite Office, 919 Third Ave., North Plaza, New York, N.Y. 10022 or call Lori Schulweis (718) 937-7474.

May 10–12
Lighting World International, Jacob K. Javits Convention Center, New York. Contact National Expositions, 15 W. 39th St., New York, N.Y. 10018 (212) 391-9111.

May 11–13
Third Annual World Exposition of Ceramic Tile and Bathroom Furnishings, McCormick Place North, Chicago. Contact TSI, Inc., Inlet Plaza, Suite 406, 1016 N. Clemons St., Jupiter, Fla. 33477 (407) 747-9400.

May 21–24
International Contemporary Furniture Fair, Jacob K. Javits Convention Center, New York. Contact George Little Management, 2 Park Ave., Suite 1100, New York, N.Y. 10016 (212) 686-6070.

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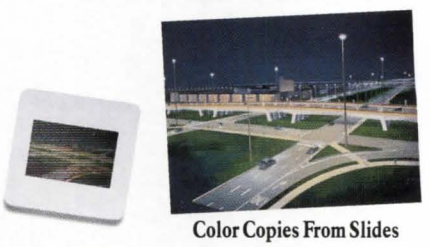
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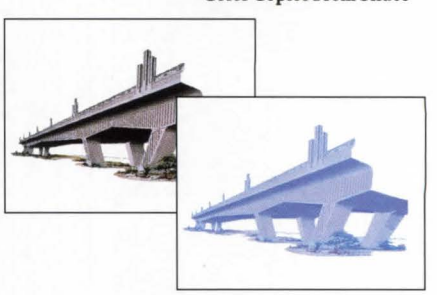




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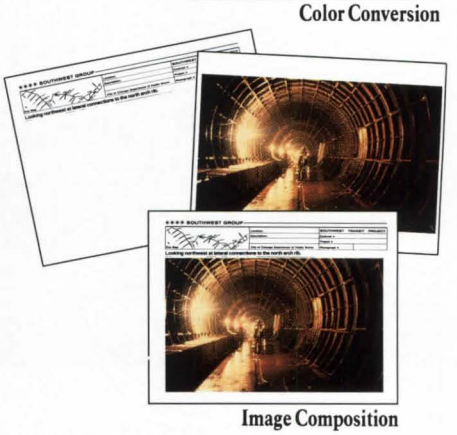
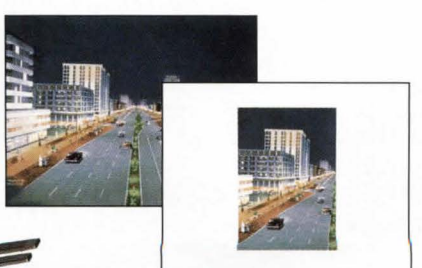


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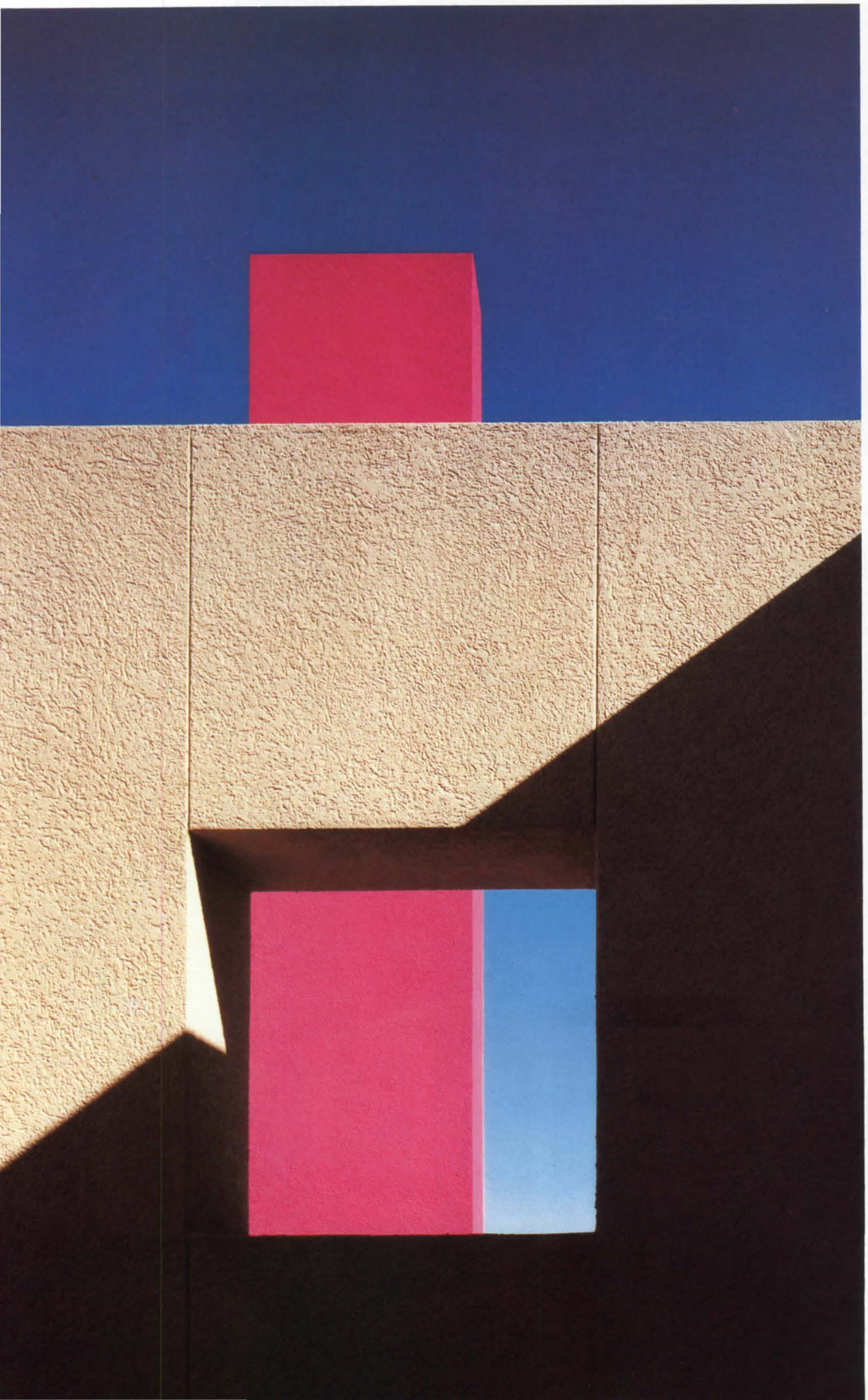
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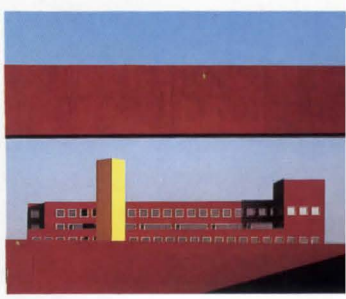
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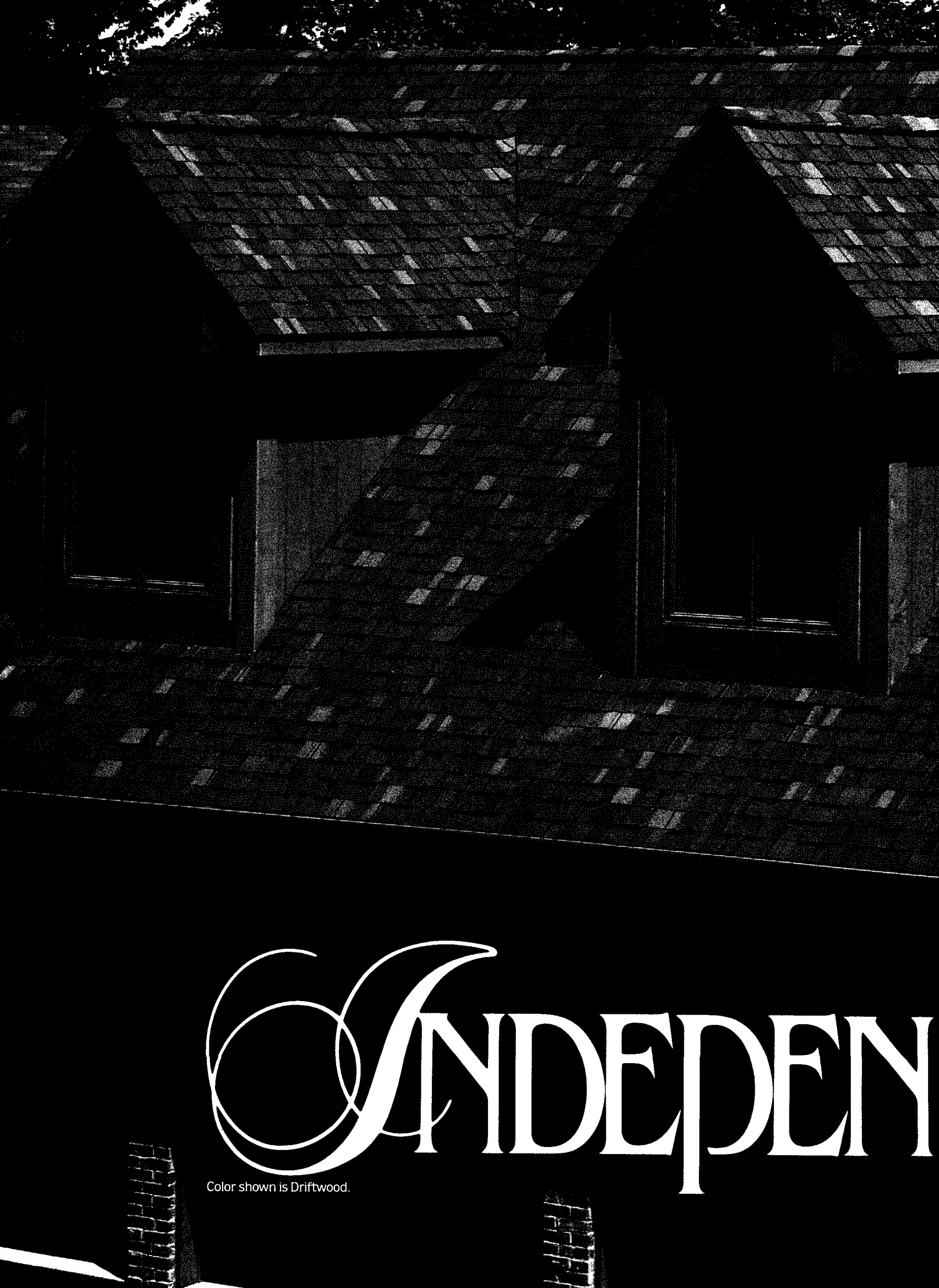
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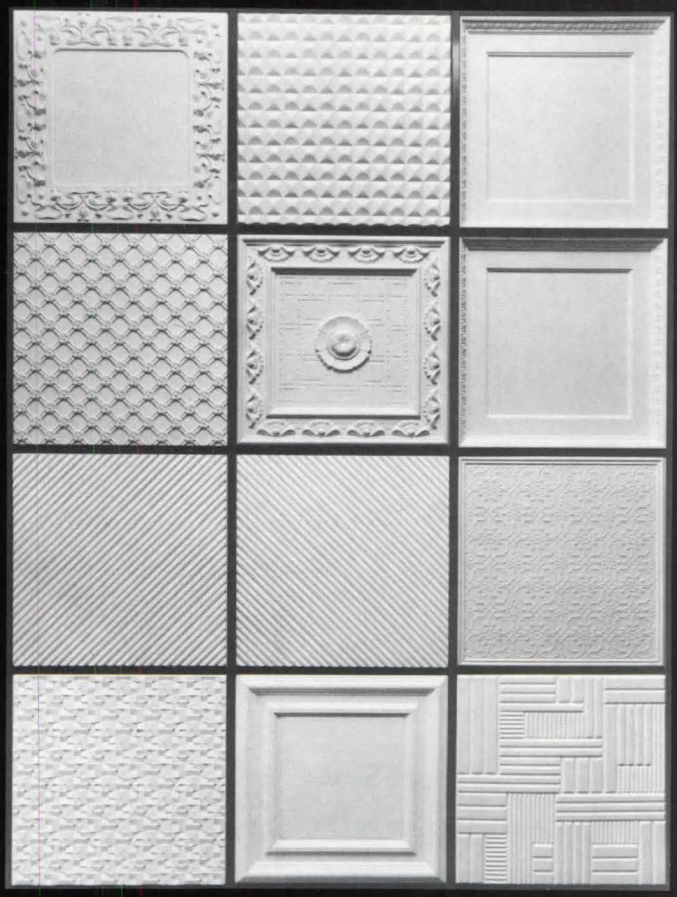
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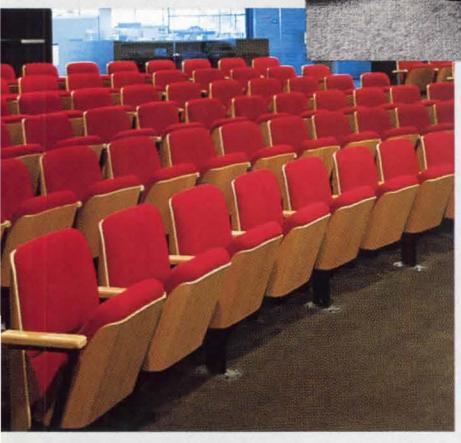
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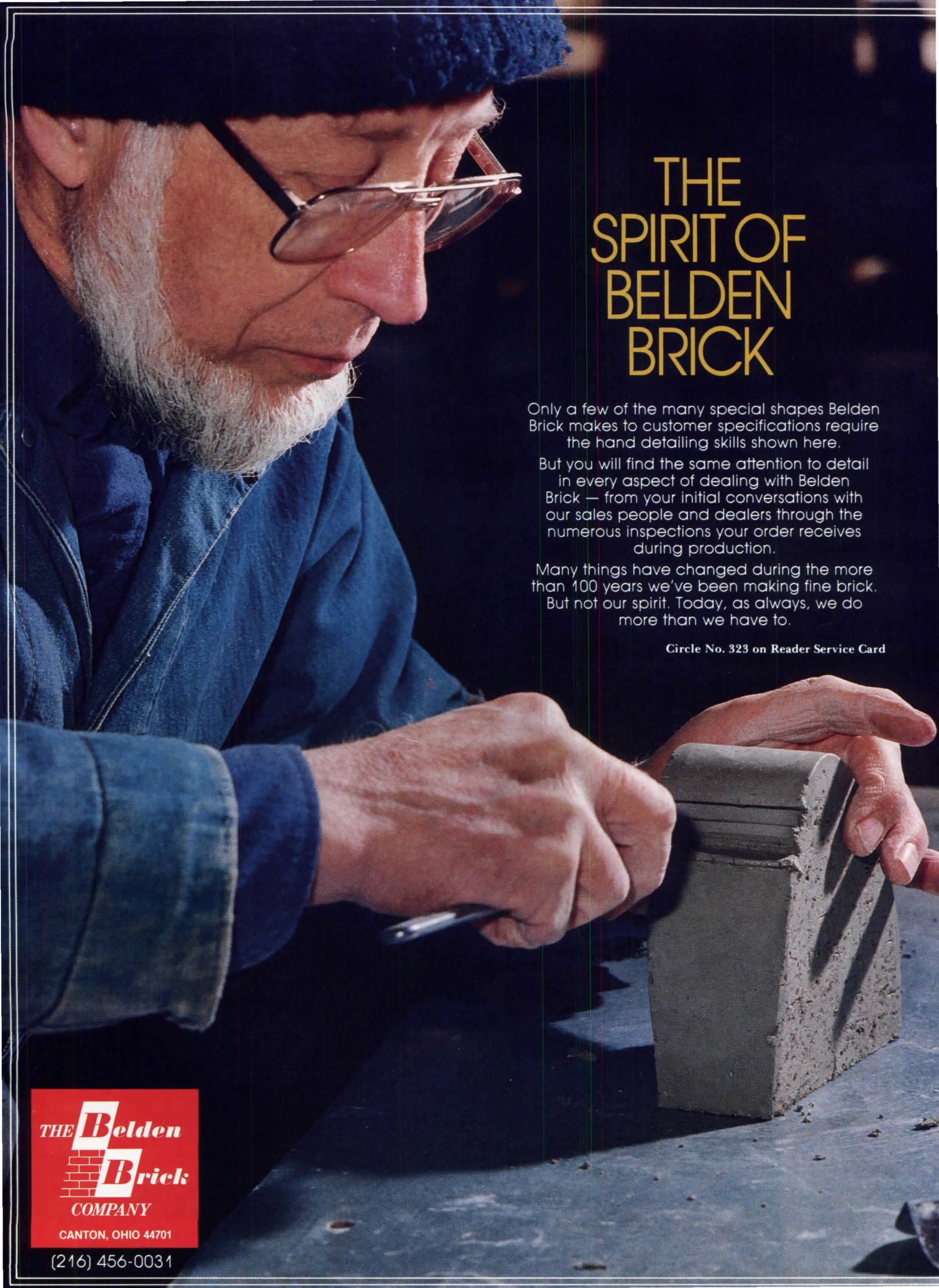
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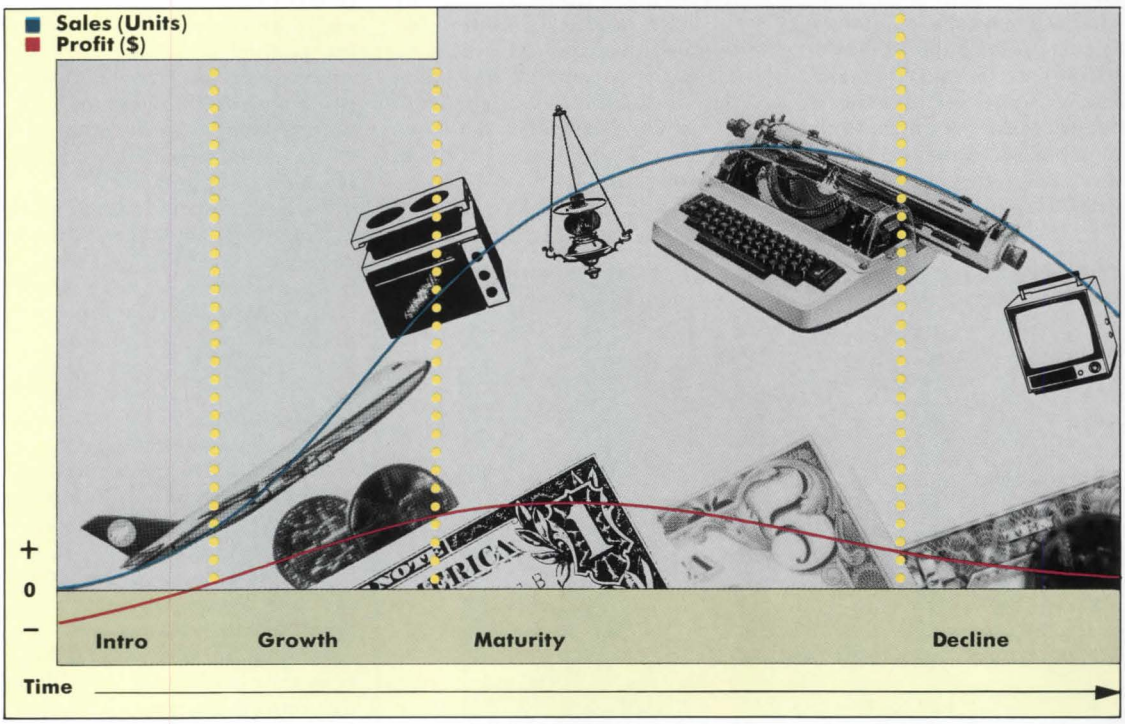
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P/A Practice

Products: Michael Chusid looks at the market acceptance of building products.
Specifications: Walter Rosenfeld examines the expert witness's role
Law: David Jones discusses public demands placed on developers and architects.



Products: Life Cycle

An awareness of building product trends can contribute to an architect's ability to stay in the forefront of design and technology. The marketing concept of "product life cycle" provides a useful tool for this. By evaluating where a product is in its life cycle, an architect can anticipate changes in its availability, recognize new channels of promotion and distribution, assess the risks associated with its use, and make sense of the rapid evolution and introduction of new products.

Product life cycles are typically divided into four phases based on sales performance, and form a characteristic "S"-shaped curve. The introduction of a new product is marked by slow sales growth. It takes time to train salesmen, build distribution channels, overcome reluctance to change established behavioral patterns, and get the new product into the specification pipeline. Manufacturers must identify innovative customers and work closely with them during this phase to persuade them

(continued on page 54)

Law: Development Exactions

Quite often architects are a property owner's first line of defense against the imposition of unreasonable conditions on development. Since architects may be liable for giving improper advice to the client, it is important that they recognize an unreasonable condition to development approval when it arises.

Local governments routinely shift the costs of providing public improvements from taxpayers to developers and builders by imposing exactions as a condition to approving a development. Although the term "exactions" technically encompasses a narrow range of conditions, the term is used here to include a wide variety of fees and concessions demanded by local government for the benefit of the public. Examples of the types of exactions that may be encountered include: dedication of rights-of-way; funding for streets, sidewalks, traffic signals, water, or sewer lines; off-site landscaping; even public art.

Often, the exaction is also a

(continued on page 58)

Specifications: Witness

Because of their specialized knowledge of contract documents, their technical understanding of construction materials and processes, and their critical role in construction project documentation, specifiers are likely to find themselves in demand as witnesses at some time during their professional careers.

While the specifier's goal in preparing project manuals is to foresee what might go wrong in the construction process and to head it off verbally, experience indicates that construction often generates conflicts, some of which can not be resolved without formal procedures before a judge or arbitrator. As either the author of the documents in question or as an independent expert, the specifier may very well have to face pointed questions posed by lawyers and hostile interrogation on behalf of unsympathetic litigants.

Served with a subpoena, specifiers have little choice but to appear when called to testify in a

(continued on page 56)

Practice Points

Office vacancy rates showed moderate improvement in 1988, reports Coldwell Banker's Office Vacancy Index. The national metropolitan average vacancy rate declined 1.0 percent from 1987 to 19.7 percent. The national downtown average last year was 16.2 percent, a 0.1 percent drop while the suburban average witnessed a 1.3 percent decline from year-end 1987 to 21.5 percent year-end 1988.

Construction cost increases in 1988 doubled, states American Appraisal Associates, a firm located in Milwaukee, Wisc. Based on labor and material data from 20 cities nationwide, 1988 costs increased 3.9 percent, compared to a rise of 1.6 percent during 1987. The firm predicts 1989 construction cost increases in the 5 percent range.

U.S. educational institutions may spend more than $11 billion a year on construction through 1990, predicts ENR. Overcrowding, poor facilities, and even changes in teaching philosophies are behind the expansion. California topped the list in 1988 by spending more than $966 million for educational buildings.

Hourly billing rates in design firms increased in the range of three to six percent over last year's level, reports the 1989 Design Services Fee Structure Survey published by PSMJ. The demand for design services continues to grow, says the report, allowing firms to pass on higher fee levels to clients. Available from PSMJ in Newton, Mass., the book also presents data on changes in liability rates, computer billings, fee data for over 44 project types.

Products *(continued from page 53)*
to give the product a trial. Because of heavy start-up costs and promotional requirements, little or no profit is realized by a manufacturer during this phase, despite typically high prices. Intelligent building systems are in this introductory phase.

During the growth phase, a product obtains rapid market acceptance and improved profitability. "Where has the product been used?" is a question architects often ask, and in this phase the majority of firms will follow the lead of the early-users. Increased demand will stimulate competitors to introduce new product options. Although manufacturers continue to provide high levels of promotion, prices tend to remain stable, while profitability increases as the cost per sale drops and the economies of production increase. Exterior insulation and finish systems are in such a growth phase.

Mature products are marked by a slowdown in sales growth and profitability. Market saturation occurs when the product has been accepted by most of its potential buyers. Sales volume is affected more by the level of construction activity than by sales activities, and manufacturers may reduce their sales force to control expenses. To maintain market share, manufacturers cut prices, look for market niches to exploit, and make other modifications to their product or marketing mix. Most building products are mature, and basic materials such as gypsum board are "commodity" products with little or no difference among manufacturers' products.

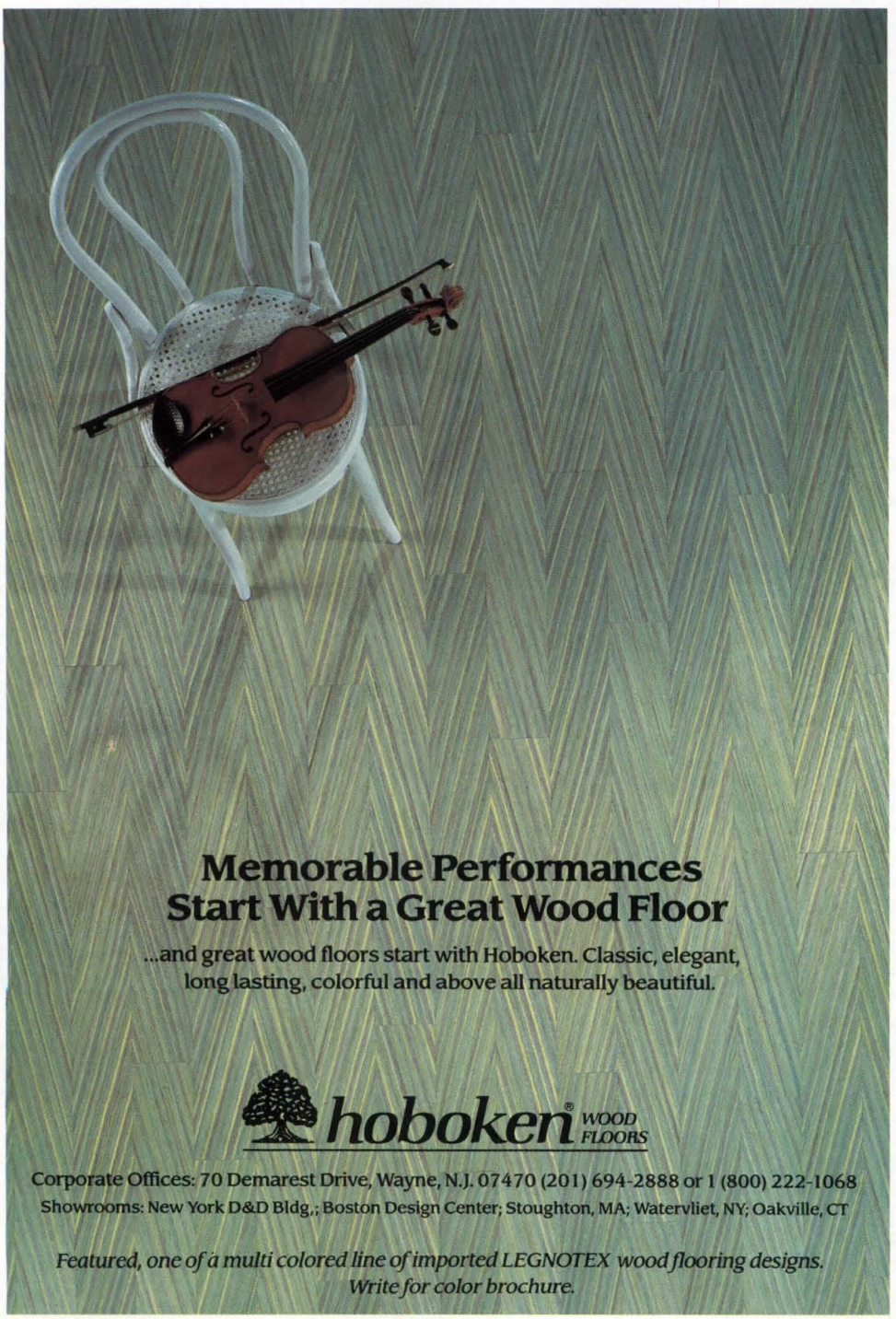
As a product starts to decline, sales and profits erode. Architectural porcelain on steel was once a popular material for service stations and curtain walls, but faced with changing tastes and improved organic coating systems, demand for the product has declined dramatically.

Such a product can often obtain a rejuvenation as a result of major improvements, new channels of distribution, or changes in fashion. Glass block is a dramatic example of a product repositioning. Popular in the 1930's and 1940's, glass block declined in sales as insulated glass and fluorescent lighting gained in popularity. The last U.S. manufacturer was ready to close its plant, but recognizing that a new generation of designers was finding new aesthetic and functional uses for glass block, the company repositioned the product and dramatically increased sales.

Within many product categories, various items may be at different phases of their life cycles. In roofing, for example, low-pitched, standing seam metal roofs are no longer limited to pre-engineered metal buildings, but are being introduced as an architectural product. Modified bitumen roofing is still in a growth phase, single ply roofing has matured, asphalt built-up roofing is declining, and coal-tar built-up roofing is attempting a rejuvenation. Among glazing materials, fire-rated ceramic glazing has only recently been introduced, and low-emissivity glass is growing in sales. Sales of insulated glass remain strong, but it is a mature product since it is already used in most building types and climates. And plain float glass is declining in use as tempered, laminated, and other specialty glasses have seen a rise in popularity.

Product life cycles also influence specification writing. When a product is new, extra care must be taken when investigating it for a particular project. Performance or descriptive specifications are appropriate at this stage to clarify exactly what is required. During a product's growth phase, proprietary specifications can be used because advertising will have built widespread awareness of it. And since the product's initial success will frequently have encouraged competitors, "or equal" specifications become feasible. As a product matures, industry standards typically emerge, allowing the use of reference specifications. As a product declines, brand loyalty deteriorates and the product becomes increasingly prone to substitutions.

The rate at which building products are introduced and the speed with which they grow, mature, and decline continues to increase. Building products do not cycle as quickly as many types of consumer goods or high tech industrial products like electronics. Still, almost every category of building materials goes through a complete cycle several times during an architect's career. In many instances, the pace is even faster. As recently as
(continued on page 56)



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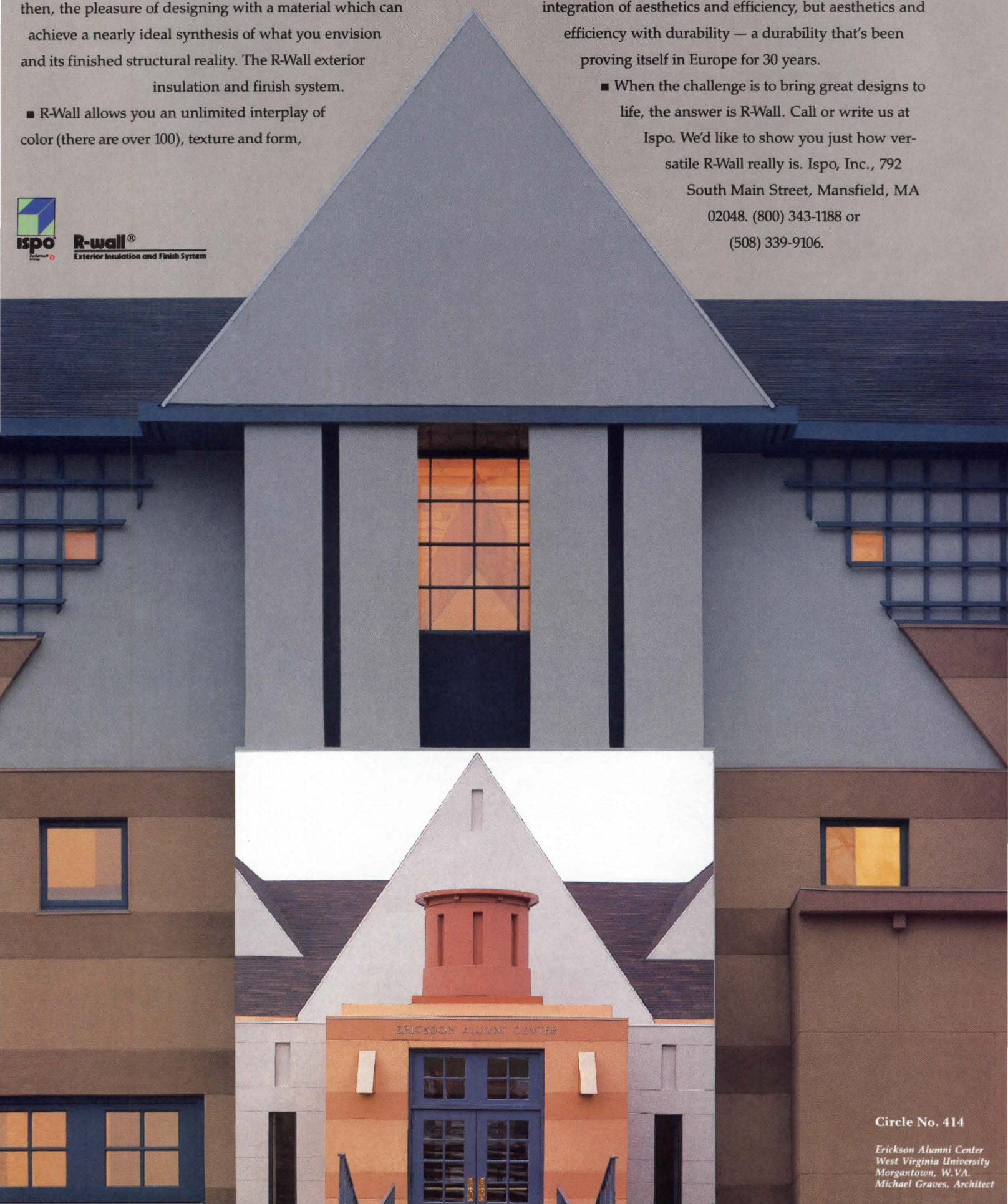
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Products *(continued from page 54)*
two years ago, for example, high-performance water repellents based on silane and siloxane were still in their introductory phase. Only a few brands were available, the price was relatively high, and distribution was often limited to qualified applicators. Heavy sales promotion was required to differentiate the product from acrylic sealers and other pre-existing types of water repellents, and to interest innovative specifiers likely to give the product a trial.

Since then, the silane and siloxane water-repellent market has changed so rapidly that it appears to be entering its mature phase. A key factor in this has been the publication of a federally financed research report establishing criteria for water repellents. This test demonstrated the effectiveness of silane and siloxane water repellents, stimulating increased demand and a proliferation of manufacturers and private brand labels. As competition increased, prices fell and suppliers shifted their emphasis from promotion to cost-efficient distribution. Brands now struggle against each other to create niche markets and other competitive advantages, and mergers and other forms of market consolidation are occurring. Meanwhile, research and development continues on new types of water-repellent chemistries. While silane and siloxane products may not decline for a number of years, I would not be surprised if a new product type starts the cycle over again in the very near future.

Michael T. Chusid ■

The author is a marketing and architectural consultant to building product manufacturers and has offices in Oklahoma City and Chicago.

Specifications *(continued from page 53)*
pending case. But they can decide whether or not to accept an invitation to become an expert witness (generally a paid position) for one side or the other in a dispute. What factors should be considered when making this significant decision?

Credentials: If the specifier lacks formal credentials (official paper that verifies one's appropriate training or experience) he or she may not have credibility as an independent expert, even though otherwise acceptable as a participant having done work on the project. Imagine the embarrassment suffered by one experienced specifier some years ago, who revealed under questioning, that he was neither a licensed architect nor engineer and was immediately asked to step down without testifying. The minimum credential that today might have prevented such an incident is certification by the Construction Specifications Institute, obtainable after examination. Otherwise, self-asserted expertise will not be accepted without question.

Party of the First Part: Who are the litigants? It's important to find out who are the adversaries before deciding whether to participate voluntarily. Certainly, if the parties are personally known, the decision is simplified. An example: If you are an independent specifications consultant whose clients are architects, you may not want to be in a position of helping to show deficiencies in the work of an architect, whether or not a potential client. Even as an employed specifier, you should make certain that your firm has no long-term or immediate interest in the outcome of the case or the fortunes of the parties to it. It is important to remember that volunteering to testify on one side is a political (not a technical) decision and requires circumspection.

The Whole Truth: But even if these considerations present no apparent difficulties, other problems can occur in disputes where the specifier is retained by one side and briefed by its lawyers. While documents may be available and shown to the specifier, it can happen that the specifier's knowledge of the events that occurred is limited accidentally or even intentionally to those items that favor one side's position. This can occur without sinister motive as a zealous attorney strives to present the best possible case for a client. The specifier/expert is then asked to render a judgment of the case or aspects of it that might be significantly altered by a broader knowledge of the facts. Specifiers can thus be trapped—often in court—into a weak position that reflects unfavorably not only on their testimony, but also on their reputation, which can be far more damaging.

Taking a (the) Stand: There
(continued on page 58)



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Specifications *(continued from page 56)* are articles and books and chapters of books on how to be a good witness, but the best source of advice in any case is the lawyer who retained you or who is developing the presentation of your side's case. Obviously you won't say things that are not true to the best of your knowledge (that would be perjury); but it is equally important not to testify about things that are outside your area of expertise. It is best to stick to facts. When asked for your opinion, give it thoughtfully, simply, in carefully chosen words. Answer only the specific questions asked. Even as an expert you are not supposed to know everything about everything: just more than the non-professional knows about your special area of experience.

Time and Materials: It is often difficult to know how much time will be required: for studying documents, for briefings by attorneys, for hearings, trials and just waiting around to be called to testify. The specifier's calendar, usually rife with meetings and deadlines, fills up quickly, and the specifier needs to get some early indication of the number of hours or days involved before making a commitment to a case. And, just as in estimating architectural drawing production schedules, some allowance must be made for slippage, unforeseen events, postponements, and conflicting demands that can cause delays. What you think will most likely be finished by June could last another year.

The System: Experiencing formal dispute resolution in the form of either arbitration or a court proceeding, is in the end valuable to the specifier, whether as a witness or merely as an observer. The project manual is, after all, part of a contract, and, as such, is tied to the legal system under which construction takes place. Formal dispute resolution is to construction what surgery is to medicine: it may be a last resort, but it plays a vital part in making the system work. Specifiers need to understand that system well in order to work within it effectively. Being a witness in a construction dispute puts the specifier into the middle of the action, focuses attention on basic issues, and heightens awareness of the implications of the specifier's daily work.

Walter Rosenfeld ■

The author is an architect and specifications consultant in Newton, Mass.

Law *(continued from page 53)* condition to approval of plans submitted by the architect. Conditions may be attached at various stages including zoning, subdivision submittal, site plan review, design review, and building permit review. Many times, the architect is the only primary consultant involved during these procedures.

Imposition of exactions on builders and developers is not surprising. Many taxpayers resent the obligation of providing roads, utilities, and other public improvements and strongly feel that the developers responsible for growth should bear the burden of paying for it. The regulatory environment of the 1970s also engendered *widespread* tolerance for the imposition of development exactions, and local governments have used this tolerance to the public's advantage. However, the political and judicial pendulum has taken a more conservative swing in recent years, with an emphasis on limiting interference with property rights. And the courts have been more willing to review cases in which conditions on development are challenged.

In 1987, the U.S. Supreme Court decided a case (Nollan vs. California Coastal Commission) that is certain to have a far-reaching impact on the legality of exactions. A property owner sought a permit to remove a beach-front bungalow and to replace it with a larger house. The California Coastal Commission granted the permit, subject to the condition that the owner provide an easement to allow public access to the beach. Claiming that the condition was not reasonably related to the approval sought, the owner sued the Coastal Commission, which attempted to justify the easement by arguing that the new house created a psychological barrier that discouraged the public from using the beach.

The Supreme Court followed the "Florida rule" that development conditions may not be imposed merely because there is a public benefit in which the property owner will share. Rather, the conditions must be related to a need created by the develop-

(continued on page 61)



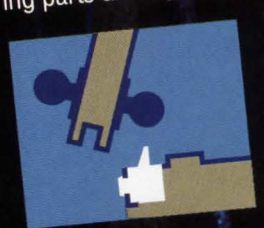
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Law *(continued from page 58)*
ment proposal itself. Finding that the new beach house did not create the need for public access to the beach, the Supreme Court invalidated the requirement for a public easement. The Court noted that if the public desires greater improvements, the public should pay the costs, not the individual property owner.

This Supreme Court decision raises interesting questions in a number of circumstances. Can an office developer be required to dedicate right-of-way or to pave a street from which access is not allowed? Can a municipality require dedication of additional right-of-way where a new use creates no additional traffic? Can sign permits be conditioned upon a general upgrading of landscaping throughout the site? Are ordinances requiring developers to contribute a percentage of construction costs to "public art" legal? Many development exactions are perfectly legal, but it is important for architects to recognize that there are subtle shades of legality and the potential for abuse.

Architects play a crucial role as intermediary in the development approval process. They process applications for zoning, design, and construction approval and advise as well as represent their clients. Architects are thus potentially liable for failing to spot a problem or for giving improper advice and they may have an implied duty to recognize an inappropriate condition for approval.

Whether to challenge an illegal or questionable exaction is a judgment call that only the property owner can make after proper advice. Sometimes the possible damage to the architect's or client's rapport with reviewing officials or the political body will outweigh the gain from avoiding the exaction. The property owner also must consider the risk of losing in litigation where the exaction is in a grey area. Although advising the client on legal matters should be left to attorneys, it is prudent for the architect to suggest that an attorney become involved where an exaction is suspect. Property owners rely on their consultants to spot problems in the approval process, and development exactions is one area where the architect can serve the client by being wary. ***David K. Jones*** ■

The author is with the Phoenix firm of Eaton, Lazarus and Dodge, Ltd.

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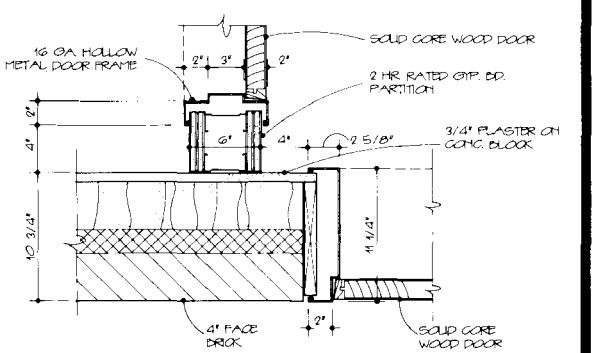
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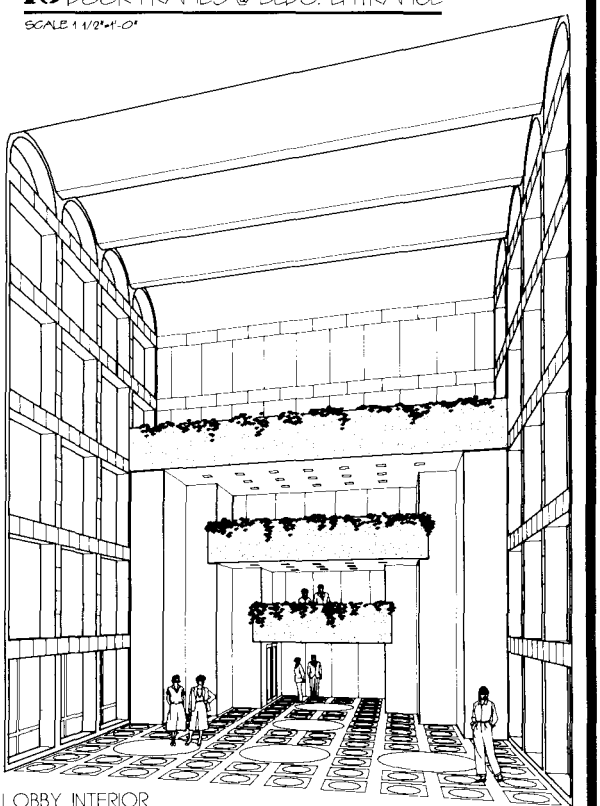
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Shepley Bulfinch Richardson and Abbott designed a multimillion dollar addition to a large medical facility. They specified a flooring they had used many times before for the operating rooms.

Shortly after installation, the floor began to bubble. The hospital was forced to close its operating rooms because of risk of infection, and was understandably upset at the loss of revenue. Although it was unclear what the problem was, the hospital wanted Shepley Bulfinch to side with it in a lawsuit against the contractor. The architectural firm was apprehensive that it would somehow get drawn into the suit, even though its relationship with the hospital was excellent. Shepley Bulfinch was also reluctant to line up against the contractor, since it felt the contractor had performed in a responsible manner and was actively seeking a solution to the problem.

Leo McEachern called Jim Raymond, DPIC's Eastern claims manager, and after some discussion of the situation, Jim asked if Shepley Bulfinch would be willing to try mediating the dispute. He explained the nature of the non-binding procedure. Leo said yes, and Jim put him in touch with a mediation firm DPIC has used successfully many times.

The mediation firm worked hard to assemble the parties to the dispute: Shepley Bulfinch, the hospital, the flooring manufacturer, the flooring subcontractor, and the general contractor. They met at 10:00 one morning in the architect's office. The mediator asked everyone to state his case individually in an open forum. He then met with each party in a private session. He suggested a settlement in which each of the parties involved contributed a proportionate sum toward the approximately $200,000 the hospital needed to remedy the problem. By 3:00 that afternoon, agreement had been reached, all parties were satisfied, and all that remained was obtaining releases from all parties. No lawsuit was ever filed.



Jim Raymond is manager of DPIC's Eastern Division office in Clifton, New Jersey. He has over a dozen years of experience in handling professional liability claims.

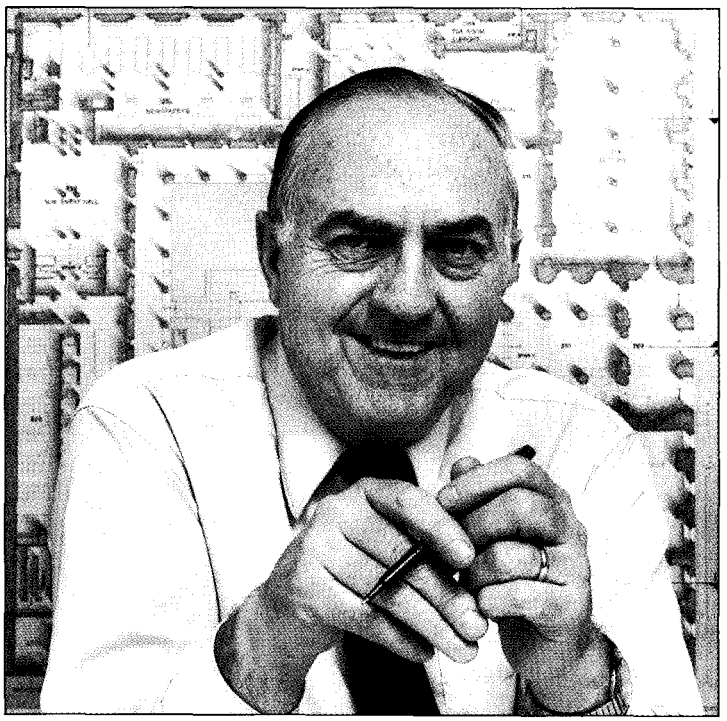
James Raymond

Claims happen. It's what you do when they happen that shows the stuff you're made of.

"Everyone went away reasonably happy. It was our first exposure to mediation and it was a good one. I can't speak for others, but I would certainly opt for mediation as a first try. If it doesn't settle, it doesn't impair your other avenues of action.

The mediation cost—in the range of $5000-6000 for all parties—was not a great sum when you relate that to the potential cost of litigation and all of the lawyers involved. Not to mention the time of the parties involved answering all the questions and providing documentation.

I meet on an informal basis every month with managerial people from some of the larger architectural firms in the greater Boston area, and one of the things we often talk about, of course, is professional liability and the trends associated with it. I notice that more and more of our peers are now in DPIC's stable. There is more of an awareness about DPIC, what they do and the benefits that accrue to the firm by going with DPIC. The educational programs, the loss prevention—they've all been very much interested in that. They are all faced with the same concerns that we have."



Leo McEachern

Leo McEachern is a principal in Shepley Bulfinch Richardson and Abbott, a 138-person, 115-year-old firm based in Boston, Massachusetts. He is responsible for the firm's financial and business operations. We value our relationship with his firm and thank him for his generosity in talking about an important subject for design professionals.

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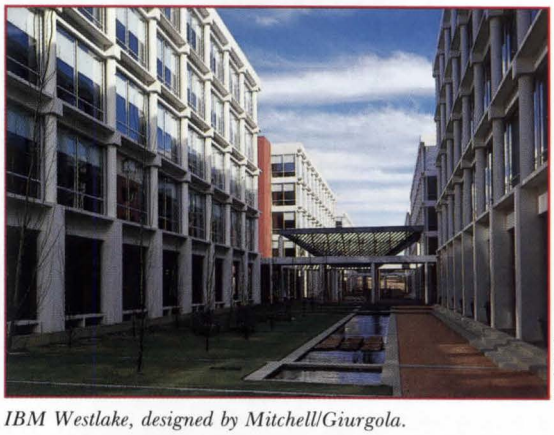
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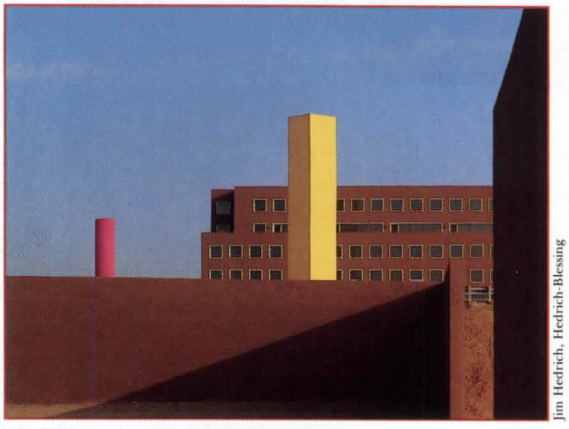
Solana in the Sun

An office and retail development north of Fort Worth with buildings designed by Mitchell/Giurgola Architects and Legorreta Arquitectos breaks the mold for office parks.



Mark Darley

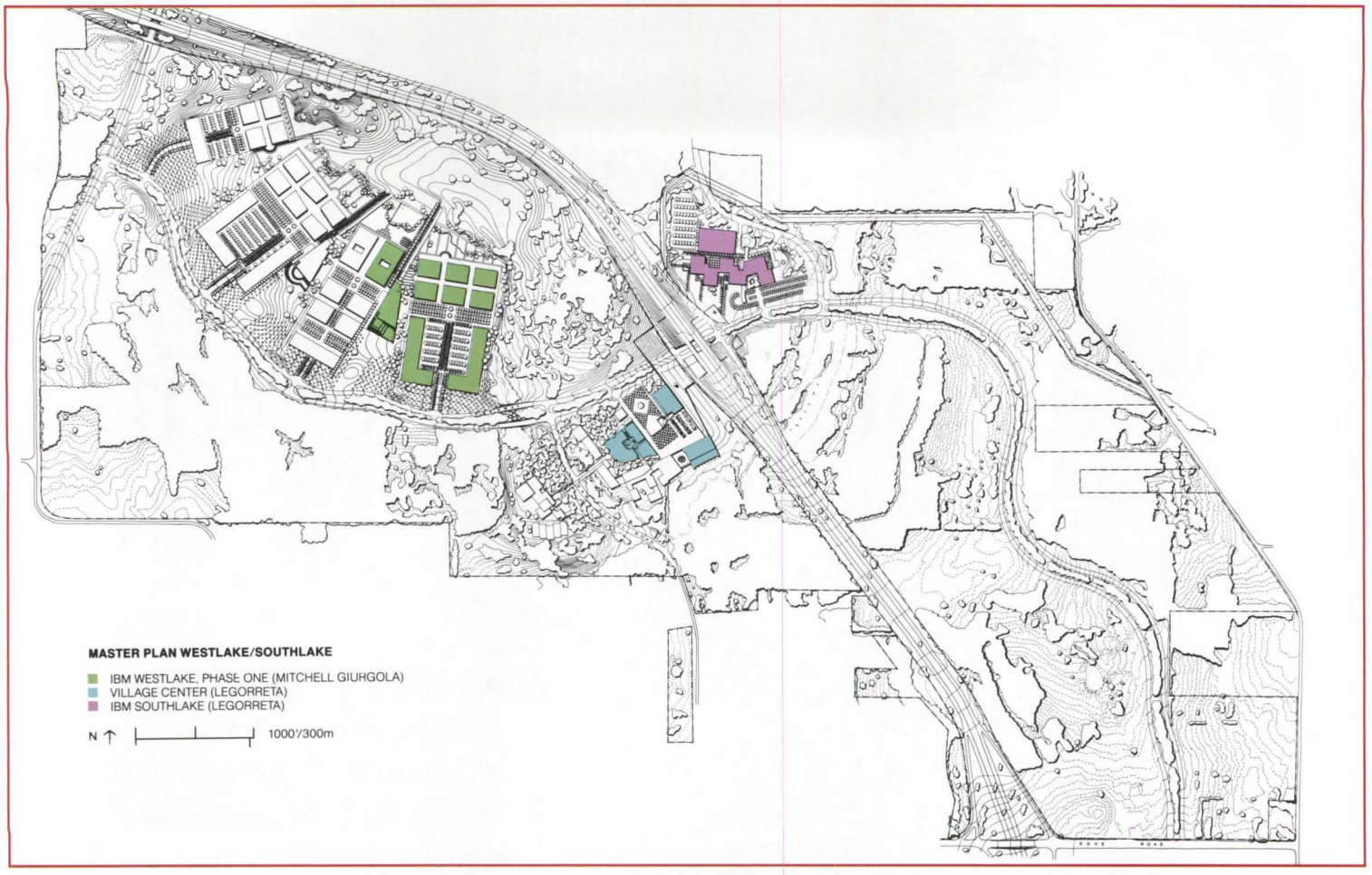
IBM Westlake, designed by Mitchell/Giurgola.



Jim Hedrich, Hedrich-Blessing

The Village Center, designed by Legorreta Arquitectos.

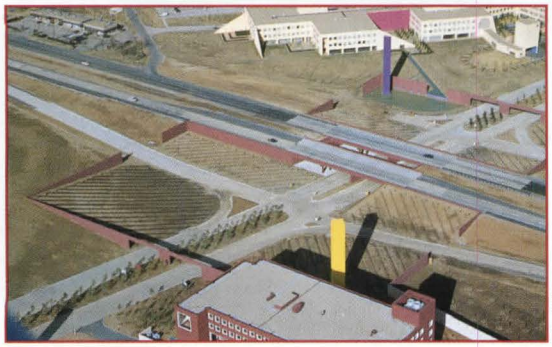
Solana
Westlake, Southlake, Texas



In its natural state, Solana's 900-acre site, which is split by a state highway (above), is mostly prairie on its southwestern side in the town of Westlake, while on its northeastern side, in the town of Southlake, clearings punctuate groves of oaks. Landscape architect Peter Walker of the office of Peter Walker and Martha Schwartz proposed that the site plan defer to these existing conditions and the rolling topography, leaving native growth mostly unchanged and keeping building profiles low. Working from this premise, the architects have responded to their individual building sites with different strategies. Mitchell/Giurgola's buildings for IBM (model, top right) are hard-edged and upright, defining clear precincts on the prairie, while Legorreta's *buildings at the* Village Center (model, center right) cluster around looser courtyards in the clearings, using slanting wing walls and irregular footprints to blend into the land. Solana is marked from the highway by a special entry court (bottom right). A purple triangular pylon that rises from a pool in the corner of the entry court (facing page) signals the point of arrival.





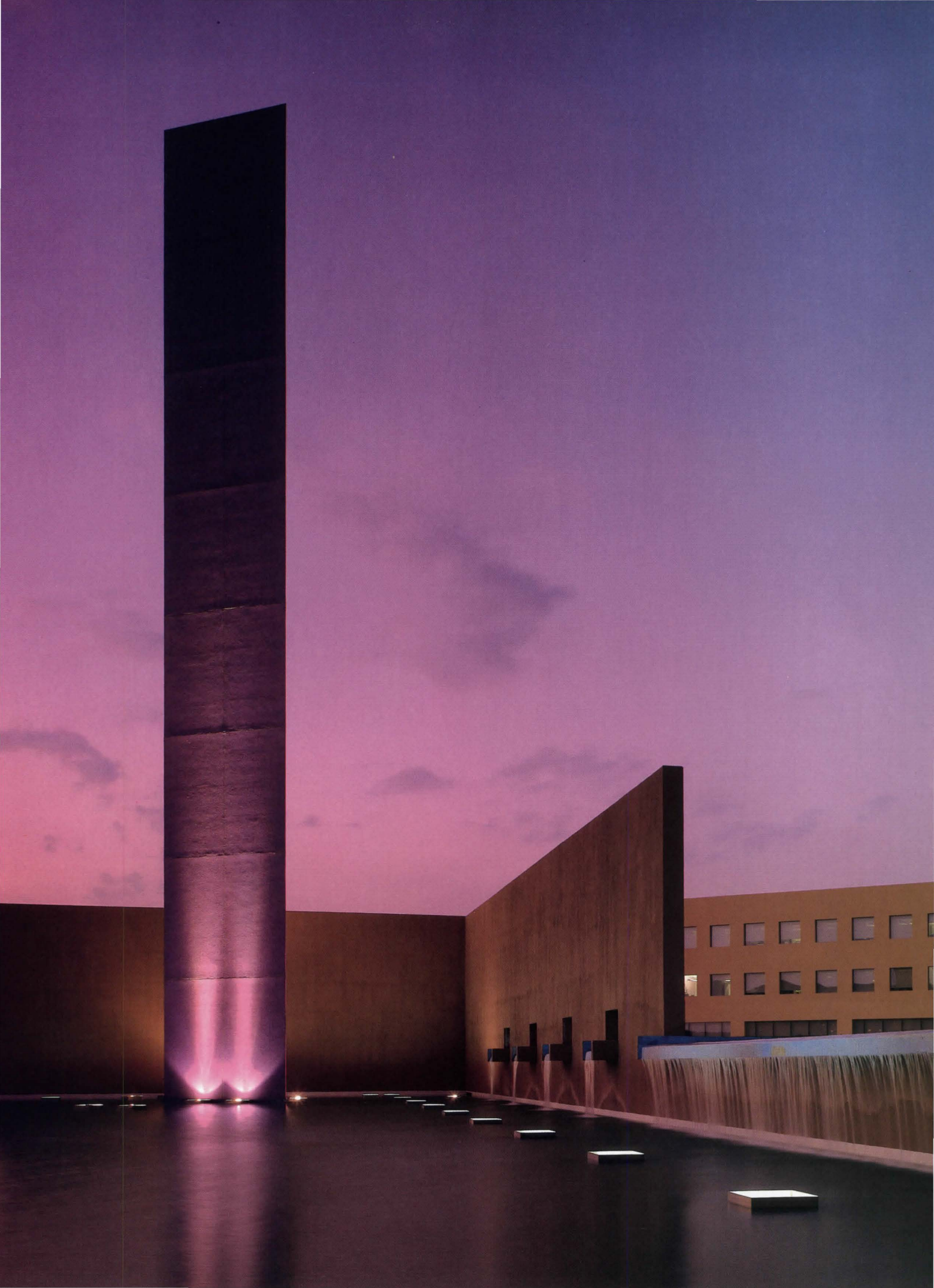


John Oliver

THE pastures and oak motts of Westlake and Southlake—two Texas towns with a combined population of about 4,000 that meet at a state highway some 22 miles north of downtown Fort Worth—provide the rather unlikely context of Solana. This exemplary multimillion-square-foot office development occupies a 900 acre site that spills into both towns.

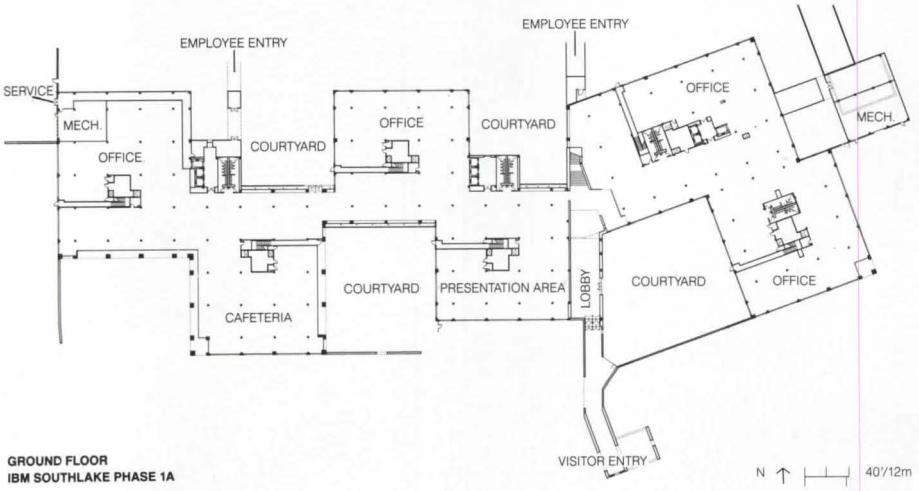
Created by a joint venture of IBM and Maguire Thomas Partners Ltd., Solana was designed by a constellation of star architects. It is a bold experiment in the all-too-familiar office-park type, and it is by far the highest-profile project under way in a state where available office space far exceeds demand. The project presages an upheaval of scale and use in the physical geography of this once rural part of north-central Texas, an enclave that has maintained more connections with Hereford cattle than high technology. This revolution is radiating from the nearby Dallas-Fort Worth Intercontinental Airport, which is already a prime hub for east-west connections. Architecturally, Solana projects a still grander regional role—connecting the U.S. with Central and South America.

Arthur J. Hedge, Jr., IBM's Vice President of Real Estate and Construction, says that in the 1970s IBM began "looking for a headquarters site in the Southwest to offload some of our key marketing operations." Robert Maguire's firm was called in by IBM in 1984. "I had looked at office parks around the country, and there were certain problems—isolation, lack of cohesiveness, lack of amenities—that I thought we had to solve for this project," Maguire says. The team approach was chosen, he adds, "to avoid sterility." Maguire's team ultimately included planners, landscape architects, architects, interior designers, and consultants, led by Mitchell/Giurgola Architects of New York; Ricardo Legorreta Arquitectos of Orange, Calif., and Mexico City; and landscape architects Peter



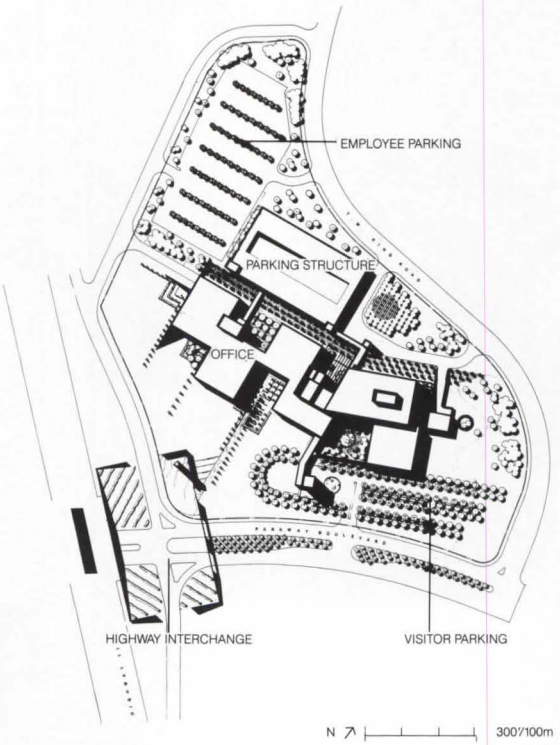


Mark Darley



GROUND FLOOR
IBM SOUTHLAKE PHASE 1A

Beyond the entry court's pylon and fountain is Legorreta's IBM National Marketing and Technical Support Center in Southlake (photo, top and site plan, right). This skewed cluster of six multistory buildings and a parking garage was the first project built at Solana. (Leason Pomeroy Associates, architect of record, did the construction drawings.) In the courtyards between the Marketing Center's buildings, where Legorreta says "I wanted to have surprises," the architect created dramatic arcades and corridors, vibrantly colored screen grids, and quiet fountains (facing page, bottom right and top). A corridor extending from the main entry of the Marketing Center divides office areas in the four buildings to the left from public areas to the right (plan, above). The entry itself centers on a 40-foot-tall, dramatically lit, barrel-vaulted vestibule (facing page, bottom left) whose saturated blue ceiling contrasts with its sandstone-paved floor.



SITE PLAN
IBM SOUTHLAKE PHASE 1A

Walker and Martha Schwartz of San Francisco (see Data, page 74 for a complete list).

Only 1.3 million of a projected 7 million square feet of space at Solana has been built, most of it occupied by IBM, and the landscape is still growing in. But Solana already overcomes some, if not all, of Maguire's criticisms of the usual objects-plopped-in-a-parking-lot species. Solana (the word means "place in the sun") may not transcend its nature as office park, but it does pioneer a new direction through the relationship established there between architecture and landscape.

Maguire Thomas had worked on earlier projects with Ricardo Legorreta, and the developers' search for architects whose work would blend with his indicates that architect's role as first among equals in the early planning and design of Solana. That arrangement also reflects the developers' desire to connect their project with Mexico and Latin America. "The historical Mexican influence in the region was something that seemed to tie it together," Maguire says.

In the long run, however, a second "big idea" was to prove more important to the project than the Mexican connection. That big idea—an extraordinary deference to the landscape—stemmed from landscape architect Peter Walker's enthusiasm for the prairie and woodlands of the rolling site. The architecture was to fit into this site, whether tucked informally into the irregular small clearings on the wooded Southlake (northeastern) side of the highway or spread out in more formal precincts on the more open, prairie-like Westlake (southwestern) side.

Distinct compounds, which Legorreta compares to Mexican haciendas, are defined by massive walls which at once unify and set limits to the spaces. Adds Legorreta, "I worked with Aldo Giurgola to find a scale of window that wouldn't weaken the walls; these were used throughout the project, varying in size according to orientation and the need for shade."

The entry court, a square of dark stucco walls marking the intersection of Solana's looping central road with the state highway, provides visitors their first glimpse of the complex. In the northeast corner of this entry court, a purple pylon stands in a pool of water. This image, like the walls that surround it, is both brilliant and serene, in a manner reminiscent of the work of Legorreta's mentor, Luis Barragán. A narrow watercourse feeds the pool, drawing the eye beyond to a cluster of low-scale, sand-colored buildings—the IBM National Marketing and Technical Support Center in Southlake, designed by Legorreta Arquitectos.



Peter Paige



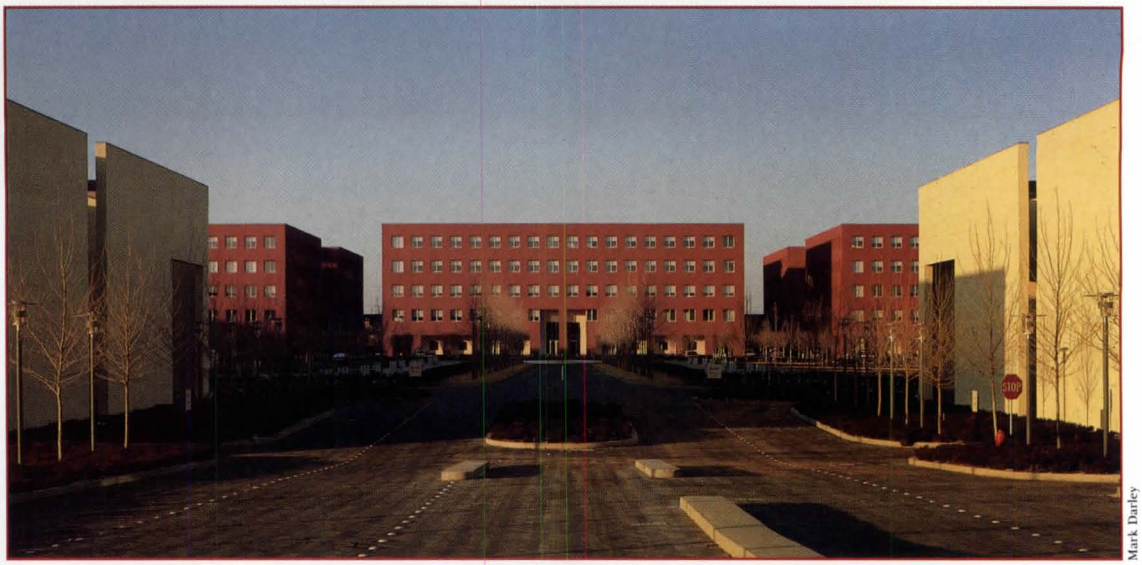
Peter Paige



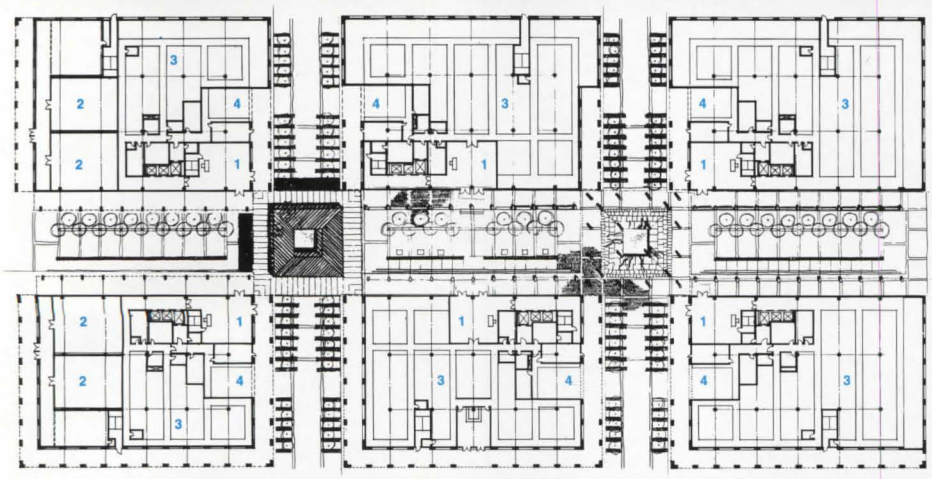
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FIRST FLOOR PLAN, OFFICE BUILDINGS

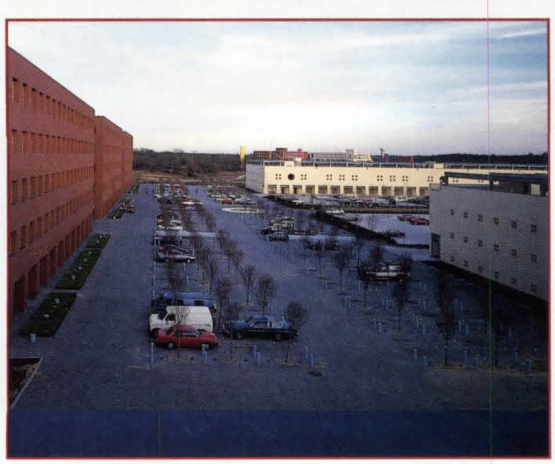
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3 OFFICE AREA
4 LOADING

N 40'/12m

The six office buildings designed by Mitchell/Giurgola for IBM in Westlake are arranged in a more formal pattern than that evident in Legorreta's designs (This cluster, the first of four to be built in four phases, is shown in plan above.) The office buildings and two substantial L-shaped parking garages enclose ground-level parking (top right and bottom right), creating hard-edged precincts on the relatively open site. The lavish landscape dominates in contrast to the sea of asphalt typical of office-park architecture. While Legorreta's buildings are organized around plazas, Mitchell/Giurgola uses a colonnaded central street, with lawns, seating areas, and pergola-covered fountains (facing page). A lattice of precast concrete and glass covers the street façades of the six office buildings (top left) which are clad in reddish-brown stucco on their outer façades. Elevators positioned at the corners facing the street reinforce its importance. The street leads to the cafeteria building (right, center).



Mark Darley



Mark Darley

The Marketing Center buildings "crawl" across their site; their slanting wing walls and monochromatic stucco façades fit Legorreta's wish that "you wouldn't have a clear idea of where the buildings end and the landscaping begins." The use of deep and dramatic arcades and corridors, vibrant screen grids, quiet fountains, and other signature features is characteristic of this firm's modernized and supercharged version of Mexican vernacular architecture. By contrast, the upper floors of the Marketing Center house utterly utilitarian back offices whose muted woods and white walls were designed to remind visitors of "an 'executive environment,' even in this rather unusual place," says Sonya Odell of PHH Neville Lewis, interior architects for the Marketing Center.

Legorreta also designed two speculative office buildings across the highway in what is called the Village Center, future site of a Marriott hotel (designed by Legorreta, with interiors by SOM Los Angeles), a sports facility, and several restaurants. Here the architect draws explicitly on the Mexican plaza, placing brown and white office buildings and a retail center where tradition would have supplied a cathedral, city hall, and market arcade.

Yet, for all their strength, even joyousness, Legorreta's designs remain foreign to the North Texas landscape. Despite their slanting walls and expertly shaped plazas and courtyards, these buildings are still apprehended initially as object buildings. By comparison, the suite of buildings designed for IBM by Mitchell/Giurgola (HKS Inc. of Dallas, associated architects) succeeds in overcoming typical office park ennui. There may be office buildings, pure and simple, but together they shape a larger whole.

This portion of the project—six five-story office buildings, two parking garages, a computer building, and a cafeteria building—constitutes phase one of a three-phase, four-cluster suite of buildings all designed by Mitchell/Giurgola and collectively referred to as IBM Westlake. The buildings of phase one, with their punched walls of reddish-brown-stucco, sit toughly upright on the land, in contrast to the slanting forms used by Legorreta to integrate architecture and landscape.

The firm's concern with establishing hard edges shows not only in the buildings but in the innovative treatment of parking. Partner John Kurtz of Mitchell/Giurgola says that making the parking as compact as possible was "a key aspect of being able to retain the quality of the landscape." The L-shaped garages of phase one frame ground-level parking, lining an avenue that leads to the complex's center and thereby creating a strong urban



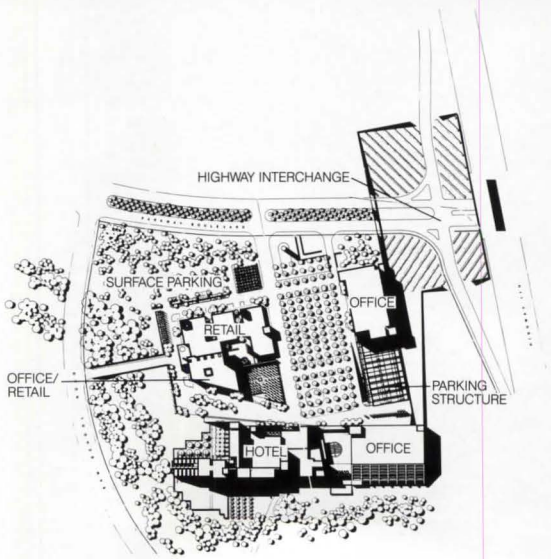


Mark Darley



Mark Darley

The Village Center (site plan, right), with its two office buildings and retail area, is the first speculative office development in Solana. A hotel, fitness center, and Boy Scouts training center are also in the works at the Village Center. In these stucco-covered buildings, unified by the white limestone that lines punched openings (top and facing page), Legorreta brings outside the brilliant colors and dramatic shadows which are confined to inner courtyards in the IBM Marketing Center, across the highway. According to Legorreta, he and Giurgola gave special study to "a scale of window that wouldn't weaken the walls" (above). A *low wall divides* the Village Center from the highway (this page, top) while a broken wall visually connects an office building to the retail center (facing page, bottom left). Similarly, manmade order is brought to the edge of a natural landscape. A sculptural pigeon coop stands in a quiet brick-lined pool (facing page, bottom right).



SITE PLAN
VILLAGE CENTER, WESTLAKE/SOUTHLAKE

space where other office parks would have a formless lake of parking.

While Legorreta groups his buildings around plazas, Mitchell/Giurgola uses an inner street linked by colonnaded walkways and pergola-covered fountains. A continuous inner façade of white precast concrete and clear glass reinforces this street as does placement of elevator cores at corner "intersections." The street itself leads to the cafeteria building, which is ceremonially posed over a reflecting pool that separates the office buildings from the mostly windowless computer center. There is an irony here: giving pride of place to the cafeteria reminds visitors, inescapably, that this is an office park way out in the country. That point is reinforced inside phase one, where office interiors designed by CRSS, Inc. of Dallas provide a mostly neutral, IBM-standard backdrop varied only by the exuberant cafeteria.

But if the interiors are ordinary "back office" exercises, the landscape departs from type, nowhere more clearly than in IBM Westlake. Here, disciplined gardens and long canals extended into the landscape provide a perfect foil to the oxbow creek running through the property and the untouched wilderness growing around its perimeter.

The use of stucco too is a distinguishing feature and one of Solana's strengths, unifying the project's diverse colors and striking forms. But it is also a problem. In old-world precedents, stucco was used as a plaster over masonry. Here it is mostly applied over gypsum board framed in metal studs with frequent expansion joints, and the difference in effect is immediately perceptible: seeking plasticity, the architects also got an unwelcome hint of plastic-ness.

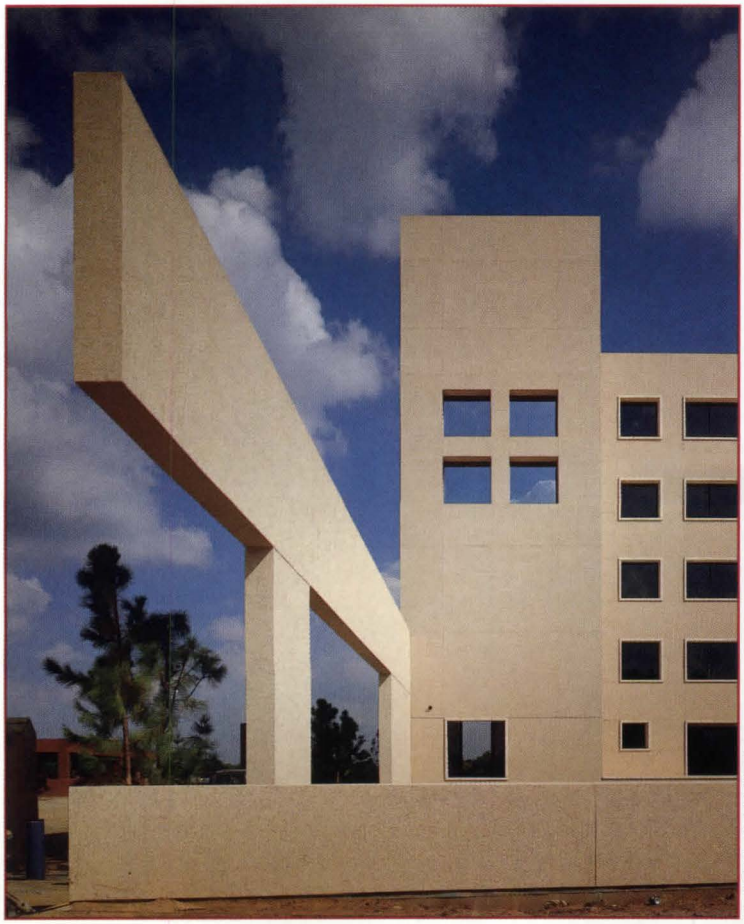
Finally, Solana's success also is linked, at least indirectly, to the decline of the downtowns of both Fort Worth and Dallas. Dallas, in particular, is in dire straits, despite all the recent high-rise building there. For all of Solana's attention to tradition, this development will add to the troubles of neighboring downtowns. Financier Ross Perot's new 2,500-acre Alliance International Center, next door to Solana, will accelerate the process.

Solana has neither housing nor effective integration with the surrounding community, but it does strain the previous limits of the office park type. In the new North Texas, rushing to make itself hub of the hemisphere, Solana's developers have moved to the head of the runway. ***Joel W. Barna*** ■

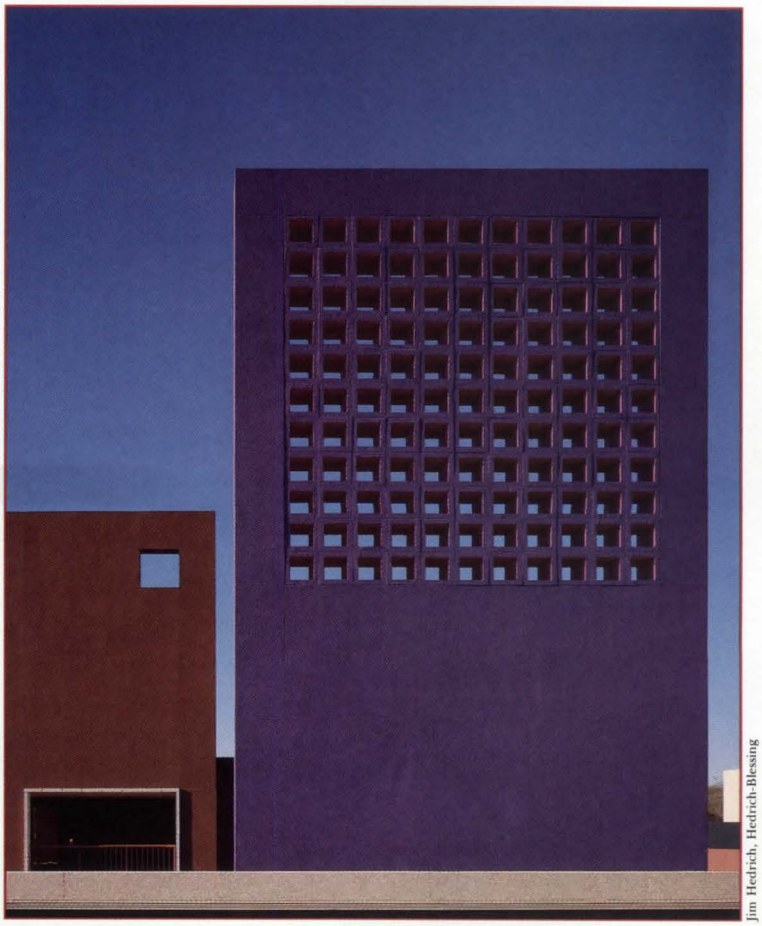
The author, editor of Texas Architect, *has joined P/A as Texas correspondent.*



Jim Hedrich, Hedrich-Blessing



Jim Hedrich, Hedrich-Blessing

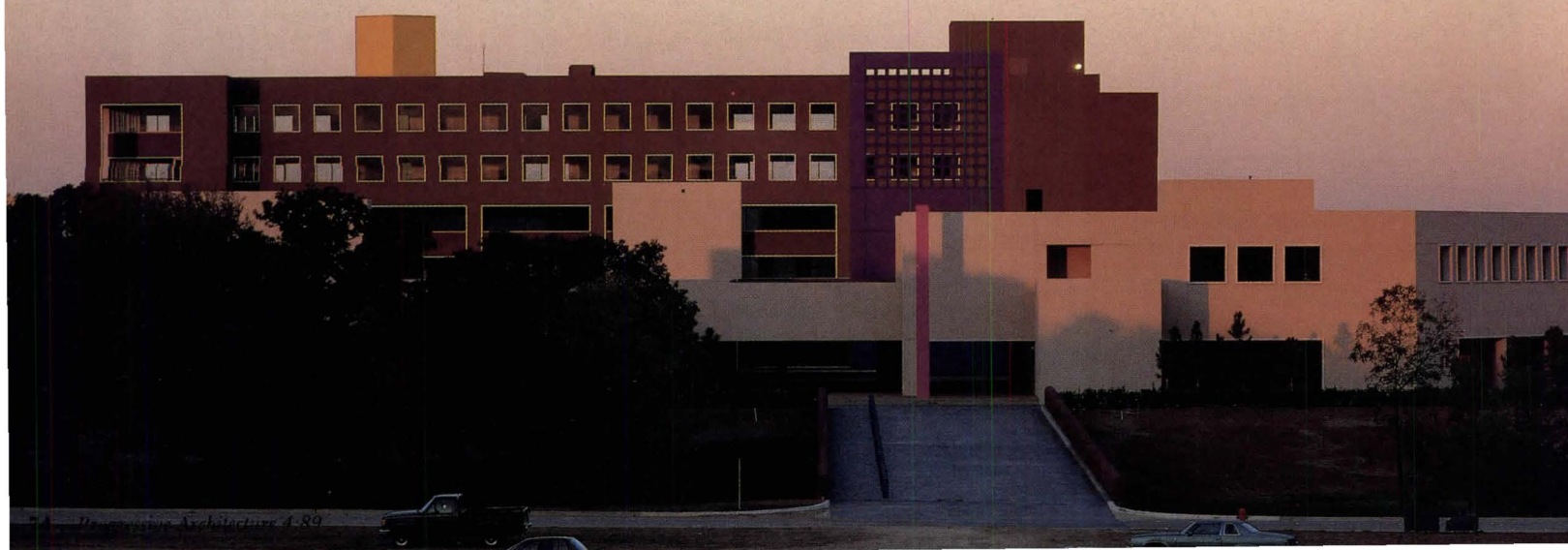


Jim Hedrich, Hedrich-Blessing

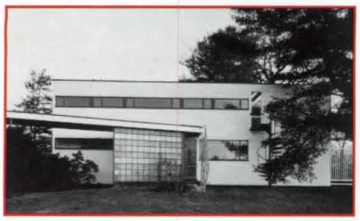
Project: *Master plan, Solana, Westlake/Southlake, Texas.*
Design team: *The Office of Peter Walker and Martha Schwartz, San Francisco (landscape architects); Mitchell/Giurgola Architects, New York; Barton Myers Associates, Architects and Planners, Los Angeles; Ricardo Legorreta Arquitectos, Mexico City; Carter and Burgess, Fort Worth (engineers, planners).*
Client: *Maguire Thomas Partners and IBM Corporation.*
Site: *900 acres of rolling meadows and tree-covered hills, formerly pasture and farm land, bisected by a four-lane highway.*
Program: *develop master plan for phased construction of 1.8 million total square feet office and retail.*

Project: *IBM Westlake, Phase One, Solana.*
Design architects: *Mitchell/Giurgola Architects, New York (Romaldo Giurgola, Paul Broches, Jan Keane, partners; David Esch, John Kurtz, Carol Loewenson, Scott Phillips, Channing Redford, Marion Weiss).*
Architect of record: *Harwood K. Smith & Partners, Dallas (Jack Nottingham, project manager; Tom Holt, project architect; Doug Megredy, construction administration; Jane Williams, construction administrative assistant).*
Client: *Maguire Thomas Partners and IBM Corporation.*
Site: *open prairie southwest of Highway 114.*
Program: *six IBM office buildings totalling 750,000 sq ft; 250,000-sq-ft computer building; 140,000-sq-ft cafeteria building with dining and meeting rooms; two multi-story parking garages for 1875 cars; landscape parking court for 625 automobiles.*
Structural system: *poured-in-place and precast concrete for all buildings except parking garages which are poured-in-place with post-tensioned long-span beams.*
Major materials: *concrete, stucco, hollow concrete block (garages), painted aluminum windows.*
Mechanical system: *central energy plant in basement of cafeteria building, serving steam and chilled water to entire complex; HVAC units on top floor of each building; garages naturally ventilated.*
Consultants: *The Office of Peter Walker and Martha Schwartz, San Francisco, landscape; CRSS, Inc., Dallas, interiors; CBM Engineers, Houston, structural; Cosentini, Dallas, mechanical; Howard Branston Lighting Design; A. Epstein & Sons, materials handling; Skidmore, Owings & Merrill, graphics; John A. Van Dusen, vertical transportation; Barton Aschman, traffic; Carter & Burgess, civil engineering.*
General contractor: *HCB.*
Costs: *withheld.*

Project: *IBM Southlake, Village Center, Solana.*
Design architect: *Legorreta Arquitectos, Lomas Reforma, Mexico (Ricardo Legorreta, Max Betancourt, Gerardo Alonso). Leason Pomeroy Associates, Orange, Calif. architects of record for IBM Southlake and design development for Village Center (Leason Pomeroy, partner-in-charge; John Mattox, project principal; Steven Kendrick, project manager; James Cline, Michael Weyhrich, job captains). Harwood K. Smith & Partners, Dallas, architects of record for Village Center (Jack Nottingham, principal-in-charge; Thomas Holt, project architect; Doug Megredy, construction administrator).*
Client: *Maguire Thomas Partners and IBM Corporation.*
Site: *13 acres (IBM) and 10 acres (Village Center) to either side of Texas State Highway 114.*
Program: *ground floor customer areas, offices, dining and parking structure for 560 cars totalling 397,062 gross square feet (IBM Southlake); 690,000 sq ft of offices, retail, and parking (Village Center).*
Structural system: *cast-in-place concrete (office buildings); precast double T's (parking).*
Major materials: *stucco plaster, limestone, concrete, insulating glass, aluminum frames (see Building Materials, p. 182).*
Mechanical system: *chilled water from central plant with individual air handling units on each floor of each building module.*
Consultants: *Office of Peter Walker and Martha Schwartz, landscape; PHH/Neville Lewis Associates, interiors (IBM). Stuart Laff space planning; Cosentini, m.e.p.; Barton Aschman, transportation; John A. Van Deusen, vertical transportation; Cerami, acoustical; Tina Beebe, color; Charles Pfister, interiors; SOM, signage; Rone Engineers; Rolf Jensen, fire protection; Howard Brandston Lighting Design; Epstein, material handling engineering; Metroplex Engineering (Village Center). CBM Engineers, structural; Carter & Burgess, mechanical (both projects).*
General contractor: *HCB Contractors.*
Costs: *withheld.*



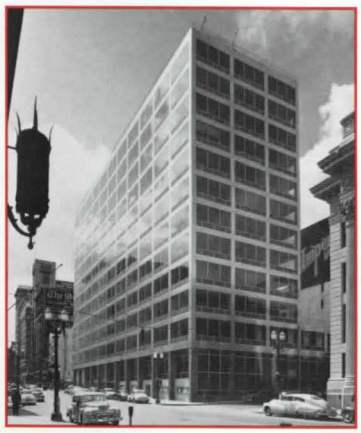
RESTORING MODERNISM



David Bohl

Gropius House, 1938

It is ironic that we must now worry about preserving examples of that which once dismissed preservation, namely Modern architecture. Yet worry we must, for several important Modernist buildings have been demolished, and a number of others are threatened (see News Report, pp. 21–28). Among those that have been saved and restored, we face another challenge: how to conserve older buildings that want to look forever new?



Roger Sturtevant

Commonwealth Building (formerly Equitable Building), 1948

It is accepted preservation practice, for example, to maintain a surface's patina or to retain as much of the original material as possible. Yet is that the correct procedure when restoring the house of Walter Gropius (pp. 111–112), who regularly had chairs refinished and worn materials replaced? Should his house be preserved as is, with all of its signs of age intact, or should his own treatment of it be respected and its finishes made to look new?

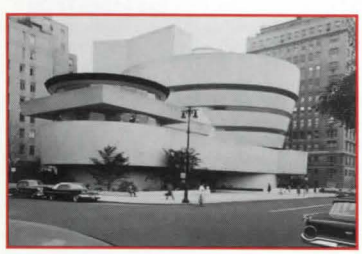
The honest use of materials presents another dilemma. The original lobby ceiling of the former Equitable Building by Pietro Belluschi (pp. 90–93) consisted of aluminum sheets riveted in place as in the body of an airplane. While a simple and direct expression of materials, that construction proved to be too expensive to reconstruct. Is it better then to adhere to the original ceiling's appearance, even if that demands faking the rivets, or to remain faithful to concept behind the ceiling and use a comparable new technology, however different it might look?



Courtesy SOM

Charnley House, 1891

Further quandaries arise with the reuse of Modernist structures. However much such structures adhered to Sullivan's dictum of form follows function, their adaptive use almost always demands an inversion of that idea, fitting the function to the form. A case in point is Sullivan's own Charnley House (pp. 76–81). Its new role as a foundation's headquarters places offices in former bedrooms and studios in a cramped basement. Would Sullivan have given up his principle to preserve the product or would he have accepted changes to his buildings to accommodate new use?



Robert E. Mates

Solomon R. Guggenheim Museum, 1956

And what of Modernist buildings whose original forms did not follow their functions very well? Some galleries at the Guggenheim Museum (pp. 82–85) have been reclaimed from office and storage use. Yet to increase the wall surface, panels have been discreetly mounted in front of atrium windows, and to ease the viewing of the art, interior walls have been installed that straighten the outward slant of the building's envelope. Are such functional improvements justified or should the original design, however problematic, be followed at all costs?

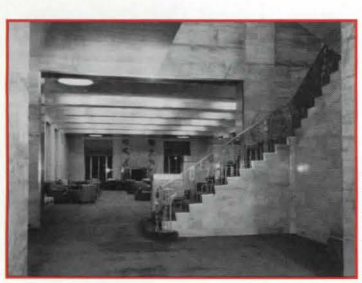
Modernists and preservationists may differ over some of these questions, but they seem to agree on others. The restoration of R.M. Schindler's house (pp. 86–89) involved removing changes that Schindler himself made in order to return the property to its original condition. While that has benefits in terms of showing and explaining the house, such an approach recalls the Modernist urge for consistency, purity, and unity of effect.



Julius Shulman

Schindler House, 1922

Related to that is the desire, shared by many Modernists, of making clear distinctions among objects of different age. In the restoration of San Francisco's City Club (pp. 94–97), for example, new elements were installed that visually contrast with the original fabric so as not to be confused with it. Although architects for centuries have worked in the style of the building to which they were adding or improving, we now find that unacceptable, perhaps even dishonest.



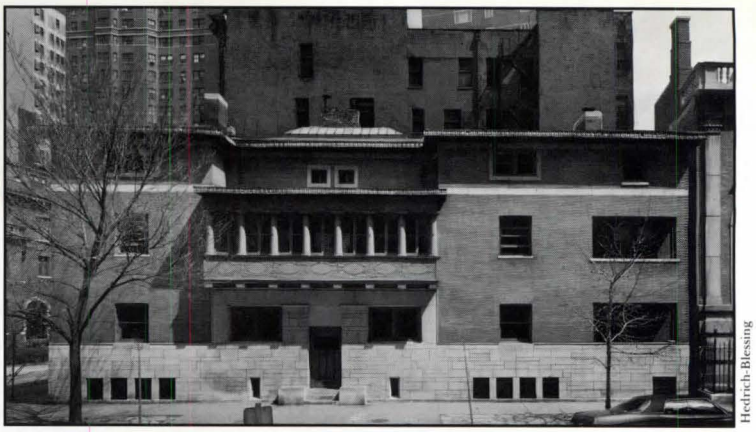
Peter A. Juley & Son

City Club (formerly Stock Exchange Lunch Club), 1930

Which raises what might be the most interesting question of all. The act of preserving Modern buildings recognizes that they, and the period that they represent, have become a part of history. Yet, it also says something about preservation. Although critical of the damage that Modern urbanism, in particular, has wrought in our cities and towns, the preservation movement has retained a Modernist view of architectural history as a series of styles unique to their place and time and thus not to be copied or repeated. Modern architects have begun to embrace preservation. But when will preservationists acknowledge that, in some respects, they have never let go of Modernism?

Thomas Fisher ■

Charnley House Restoration
Chicago



Hedrich-Blessing

From House to HQ

This house and its occupants must adjust to one another in the newly restored Charnley House, which is headquarters for the SOM Foundation in Chicago.

ALTHOUGH SOM continues to reshape Chicago, the decision to buy and restore the 1891 Charnley House as home for the 10-year-old Skidmore, Owings & Merrill Foundation can be considered one of that firm's greatest contributions to its city. Situated in the heart of the fabled Gold Coast, where wealthy Chicagoans built their palazzos at the turn of the century, the Charnley House was called "the beginning of modern architecture" by Frank Lloyd Wright, who worked on the design while an employee of Adler & Sullivan.

Wright's hyperbolic bent notwithstanding, the house's importance transcends its occasional flaws. At the very least, it is a key connection between Wright and the man he called his liebermeister, Louis Sullivan. Sullivan's hand can be detected in certain details—notably the frieze and library fireplace—and his interest in the project can be inferred from the fact that James Charnley was a close personal friend.

Regardless of which hand guided the pencil when, the house is a breakthrough building that presages many themes of the Modern movement in its taut undecorated skin and clean lines. This "modernity," which appears with hindsight to be the design's great strength, is balanced against other qualities that reveal it to be a "young" work both for the 23-year-old Wright and for Sullivan who was himself only 34 at the time. The strict adherence to a symmetrical entrance façade produces incongruities: the central pair of windows on the third floor, for example, illuminates only a linen closet, and the building in its rigid frontality takes little or no account of its corner site.

This house's pedigree alone would seem to make it a particularly appropriate home for an architecture foundation. And as a residence it may provide the desired "common ground removed from the pressures of business as well as the distractions of academic life" sought by SOM. Yet the needs of its new occupants—in particular the fellows in the Foundation-supported Chicago Institute for Architecture and Urbanism whose program is described on page 79—are not always well served by the house's domestic spaces. The ground-floor rooms, including the spectacular stair hall, work well for the Foundation's public functions. But the bedrooms are not so well suited as offices. "I am conscious of not being very good to this building," says Director John Whiteman. Other fellows work in a basement studio. To be displayed, their drawings must be sized to suit the stair hall niches, and there is no adequate pin-up space for group critiques. "A wide-open loft might be better," says Whiteman. One is planned, says Bruce Graham, Chairman of the Foundation Board, who hopes to build an addition housing studios and a library on an empty lot behind the house.

The problem of fit is compounded by a plethora of furnishings, all donated; indeed, SOM has succeeded almost too well in this department. Aside from the sheer volume of furniture, the decision not to furnish the house with period pieces is also subject to debate. Neither Wright nor Sullivan designed furniture for the Charnleys; the item closest to the date of the house is a chair designed by Wright in 1893, which is on loan to the Foundation from the Domino's Pizza Collection. In the absence of other historically appropriate furniture, the choice of Modern and Post-Modern pieces that contrast with their setting is apt. Yet this house is far smaller than it seems—the bedroom doors, for example, are only 6′3″ high. Placed in this diminutive interior, the furnishings by everyone from Mies van der Rohe to Stanley Tigerman are made to appear big and clumsy.

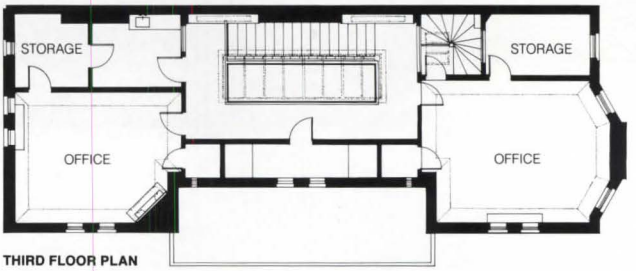
The Michael Graves-designed sconces may be the right scale for the house, but their placement—at head height or below for those taller than 5′6″—proves why the Charnleys opted for overhead fixtures in the first place. Fixtures used by Wright in the 1892 Blossom House were actually replicated during restoration and installed, but most have been removed since per SOM preference.

The fate of the light fixtures reveals the gap between architectural and interior renovation. The house's exterior has been impeccably restored to match its original condition; the interior, however, had to meet contemporary standards of comfort, lighting, and the like for office, not residential use. Moreover, historic interiors in general can be a sticky wicket for contemporary architects: it is possible to revere the building while disdaining the furnishings with which it was filled. In the absence of furniture designed or specified for the house by its architects, what goes or stays comes down to a matter of taste or for this non-profit organization, a matter of pragmatics. ***Daralice D. Boles*** ■

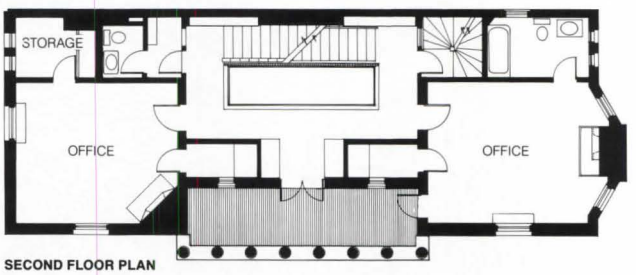
Restoration of the 1891 Charnley House on Chicago's Gold Coast (facing page) entailed removal of a 1920s wing to the south that had destroyed the façade's perfect symmetry (above). SOM also restored paired windows on the third floor that had been *combined by a* previous owner and removed tuckpointed black mortar added in the 1920s. The house, designed by Frank Lloyd Wright *in the office of Adler & Sullivan*, is a National Historic Landmark, and in taking on its restoration and future custody, SOM has chosen to "reaffirm [the office's] association with the heritage of Chicago architecture."



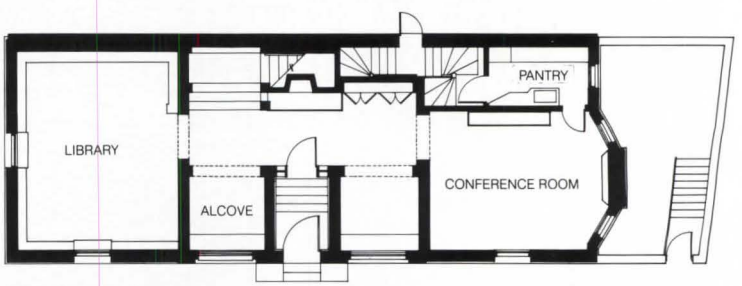




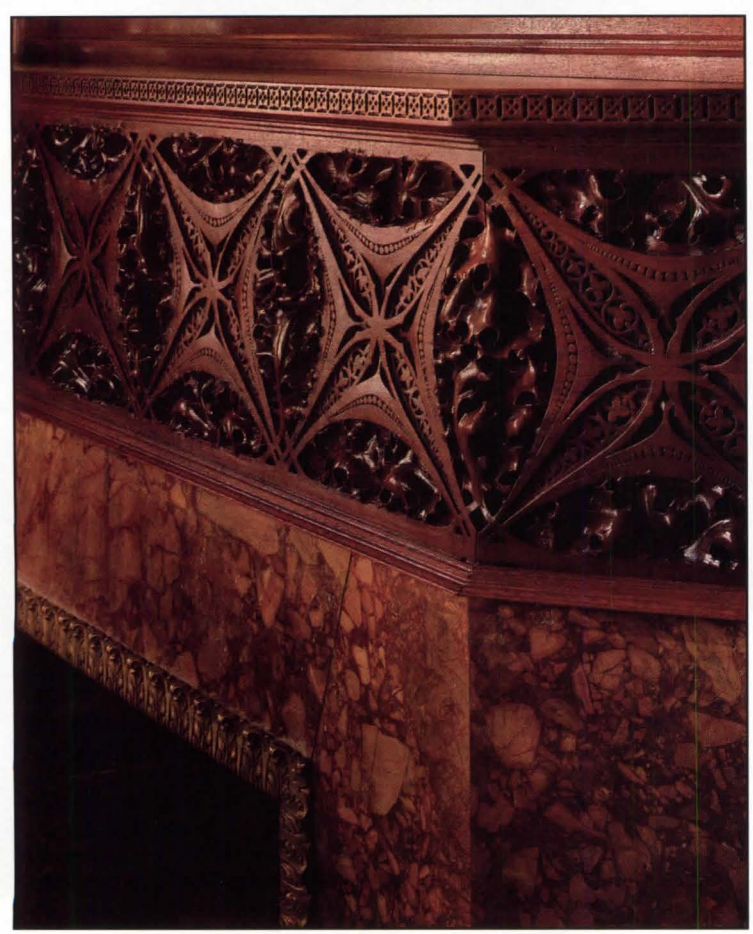
THIRD FLOOR PLAN

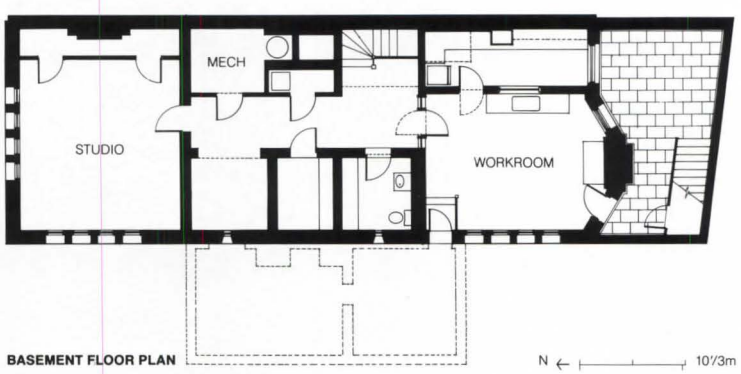


SECOND FLOOR PLAN



FIRST FLOOR PLAN

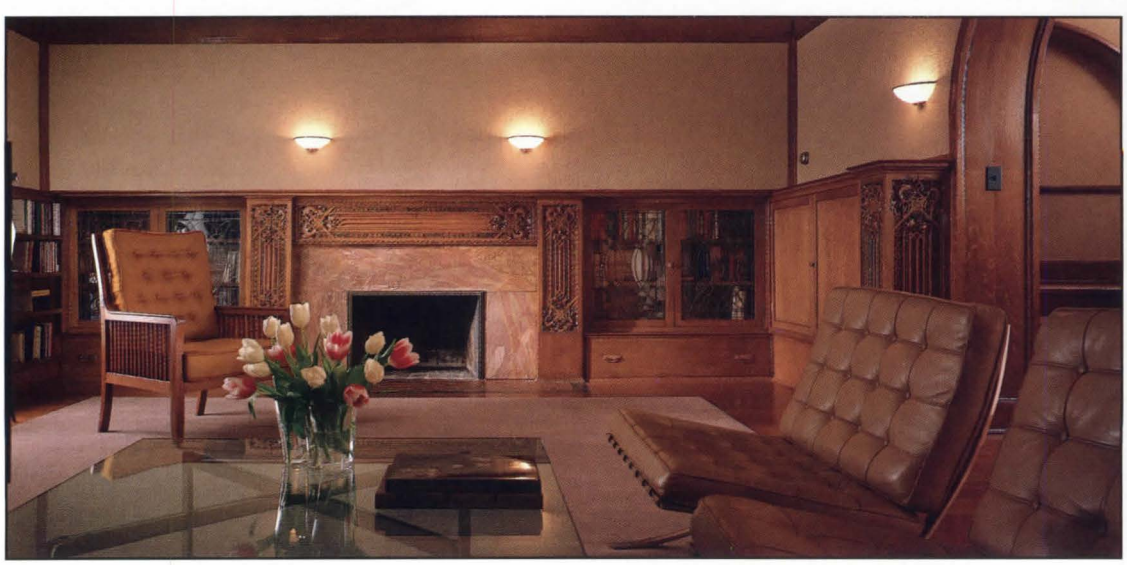




BASEMENT FLOOR PLAN

Although generally considered to be the work of Wright, the Charnley House design shows the influence of his employer Louis Sullivan in certain details, most notably the entrance (above left) and dining room fireplace (left). Because of the complete absence of period photographs or drawings, SOM's restoration team, led by John Eifler, relied heavily on other Wright designs such as his Home and Studio to determine missing details. The ground-floor library (facing page, bottom) and dining room, organized to either side of a grand stair hall (facing page, top), are well-suited to their new function as the public rooms of the SOM Foundation. These spaces have been furnished for the most part with donated Modern and Post-Modern designs, including the library's Barcelona chairs and table (facing page, *bottom, right*). More at home in many ways, however, are a chair designed by Wright himself a year after the Charnley House was completed (facing page, bottom, at left) and one designed by Antonio Gaudí in 1902 (facing page, top, foreground). Lighting sconces designed by Michael Graves (facing page, bottom, right wall) replaced replicas installed but later removed.

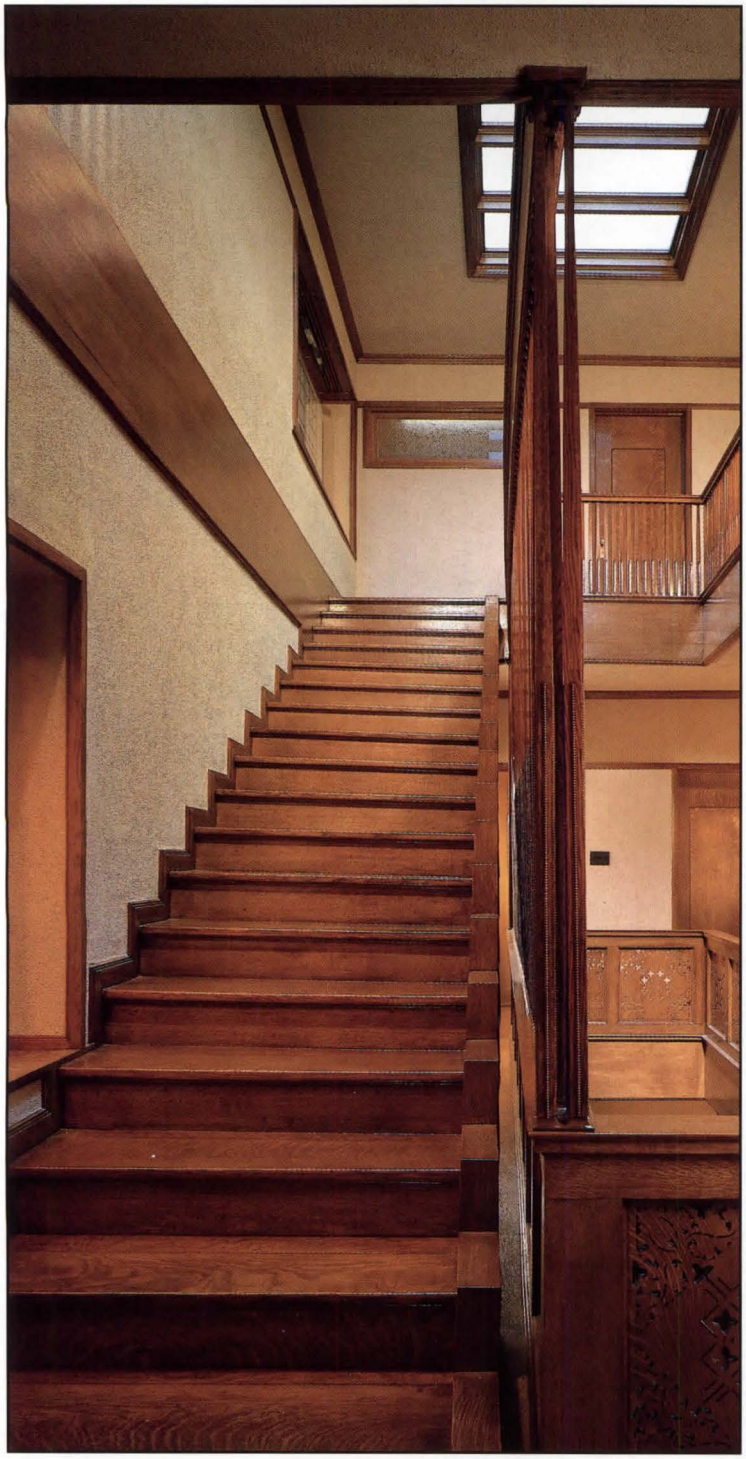




FOUNDATION PLANS

"We have more technology than we can use," says Bruce Graham, Chairman of the Skidmore, Owings & Merrill Foundation in Chicago. "What we need now is to create a body of research on the language of architecture. The selection of Dr. John Whiteman as our director was a good one because his emphasis is language." Whiteman himself says of the Charnley House, "this space will be used for architectural rehearsal," where architects and others can test ideas independent of actual practice. Whiteman, a professor at Harvard University's Graduate School of Design, whose own research has focused on perspectival perception, oversees as Director of the SOM Foundation, a rotating group of fellows at the newly formed Chicago Institute for Architecture and Urbanism. Not all of the fellows are architects, nor do all attend on a residential basis. Those designated Senior Fellows—such as architect John Hejduk, painter David Hockney, and critics Hal Foster and Susan Sontag—work in Chicago on a negotiated-time basis. Residential Fellows such as architect Mario Gandelsonas and author Richard Sennett live and work in the city for a given period of time, from three months to a year. The director himself is appointed for one three-year term. All fellows are assisted by student interns, who are selected on the basis of architectural project proposals that are executed, presented, and debated at the CIAU. Although these sessions are taped for eventual publication, they are conducted privately. "Good architectural work is hard to nurture," says Whiteman. "Early invasions of publicity are not welcome." Transcriptions, drawings and models will become the core of an archive that the Foundation expects to make available to scholars and architects. Complementing its commitment to architectural research embodied in the CIAU program, the SOM Foundation funds traveling fellowships for students, engineers and architectural educators. These are coordinated by Sonia Cooke, the Foundation's Administrative Director whose offices are also located in the Charnley House.

The House itself is the Foundation's strongest tie to its city; unlike the Graham Foundation or other Chicago institutions whose programs are open to the public, the CIAU is comparatively introverted. Still, "it is somehow romantic to bring the project of Modern architectural research back to Chicago," says Whiteman, alluding to the city's past and, he hopes, future prominence in that field.







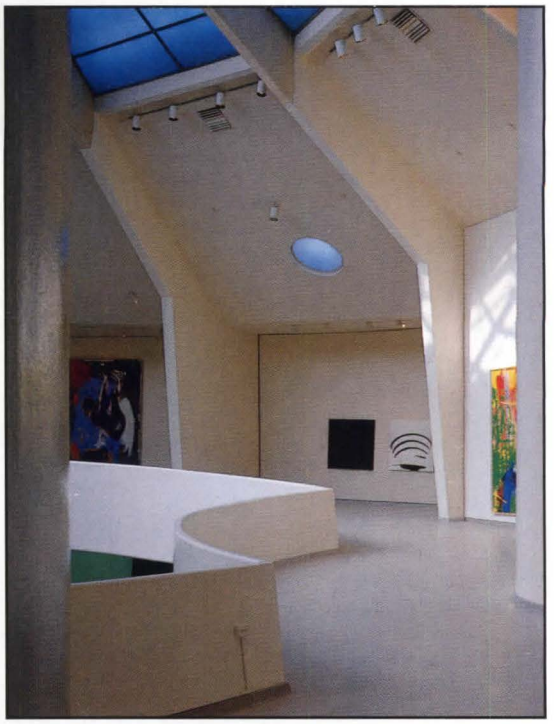
The heart of the Charnley House is its great skylighted stair hall and delicate wood screen which rise from the ground floor (left) through the second floor (above) to the top (above, left). At each landing, niches set to either side of the fireplace flue create the illusion of a massive wall behind the stair. (The flue runs under the first flight of stairs to the front hall fireplace. Both niche and mosaic fireplace surround are visible in photo of front hall, left.) The niches now serve to disguise contemporary services, with new air-conditioning grilles hidden within their frames.



Project: *Charnley House restoration, Chicago.*
Original architects: *Adler & Sullivan, Chicago.*
Architects: *Skidmore, Owings & Merrill, Chicago (Bruce Graham, partner; Donald Ohlson, project manager; John Eifler, architecture studio head; Didier Glattard, Gary Kohn, Anne Sullivan, Renee Sprogis, architecture team; George Yagow, interiors studio head; Susan Dyer, David MacKenzie, Klaus Mueller, interiors team; Karen Lindsey, mechanical engineer; Stefanos Peroustianis, plumbing engineer; Robert Clark, electrical engineer).*
Client: *The Skidmore, Owings & Merrill Foundation, Chicago (Sonia Cooke, adminstrative director).*
Site: *84 x 38 ft. urban corner lot facing west.*
Program: *convert 6240 sq. ft. residence designed by Frank Lloyd Wright while in office of Adler & Sullivan to use as Foundation headquarters with library, conference room, offices, studios and workroom.*
Structural system: *brick bearing walls with wooden joist floor and roof framing.*
Major materials: *Roman brick (new brick cast to match originals for south elevation) with limestone base, sills, and window surrounds; wood trim and windows; ornamental copper soffit and fascia; standing seam copper roof (see Building Materials, p. 186).*
Mechanical system: *gas-fired boiler and hot water radiators; electrical power air conditioning.*
Consultants: *Robert A. Furhoff, historic paint analysis; Dennis MacNeil, roofing.*
General contractor: *L.J. Construction.*
Contractors: *Royal Plumbing & Heating; Power N. Electric Co.; Grosse Heating & Air Conditioning; J. Wright & Sons, plastering; Two Star Construction, masonry; Gough & Bros., roofing and skylight; L.J. Construction, millwork and painting; Wenz Art Glass, leaded glass; Franz Mayer of Munich, marble mosaic repair; Matson Floor Refinishing.*
Costs: *withheld.*
Photography: *Nick Merrick, Hedrich-Blessing, except as noted.*

Solomon R. Guggenheim Museum
New York

Revealing Wright



Some preliminary renovations of the Guggenheim by Gwathmey Siegel & Associates reveal the spirit of work yet to be done.

FOR all the brouhaha that surrounded deliberations over the proposed—and now approved—annex to New York's Solomon R. Guggenheim Museum, surprisingly little was ever said about what was to happen *inside* the building. As it turns out, the program to provide new galleries, expanded administrative offices, and adequate technical services also frees the museum to wage an extensive restoration effort that will upgrade the Frank Lloyd Wright original. In the process, ad hoc changes made to Wright's building will be stripped away. And connections to the 10-story annex will introduce new sequential and spatial experiences that allow the museum to be seen in ways never possible before.

"The whole idea of re-referencing the original building to the new is all in the spatial expectation, the revealing of Wright," says architect Charles Gwathmey of Gwathmey Siegel & Associates Architects, the firm in charge of both the annex and renovation. In linking the old and new, Gwathmey has devised movement patterns that complement the circulation flow along the main spiral while providing new exhibition space in a museum building that, despite its elegance of form, is legendary for its indifference to its intended purpose: displaying art.

Two key elements of the interior work—renovation of the top level of the main spiral and the second-floor Thannhauser Gallery—were completed in 1987 to suggest to museum patrons (and perhaps to detractors of the proposed annex) the spirit in which the entire scheme is to be completed. Skylights have been reopened, partition walls removed, and terrazzo moldings replaced to recreate original conditions, where appropriate.

But Wright details are by no means sacred. A new vertical hanging wall, for instance, conceals the slanted original along the Thannhauser Gallery's curved northern end. And, in the same space, a drop ceiling that looks Wrightian (but isn't) is used to accommodate recessed lighting and, at the same time, allow the maximum wall height for hanging art.

"We're doing some interpretation, but it's clearly in the spirit of this building," Gwathmey says. "I think our work, interestingly enough, has always been very sympathetic to Wright, in terms of the architectonic nature of the way we make spaces and the materiality of the low ceilings."

For visitors who arrive at the sixth floor landing of the Guggenheim's large rotunda, the absence of a barricade blocking the top loop of the spiral is a relatively new sight. Since the beginning, this has been private space—once used as a conservation laboratory, more recently as storage. Now it is valuable exhibition space. Not coincidentally, it also will create an easy connection in the future to the top gallery floor of the new annex.

One idea governing the annex design is to heighten the perception of the original fabric. Wright's triangular stairwell, for example, will become a sculptural element that is experienced from without, not only from within. Conversely, the lozenge-shaped staff-only stair in the existing northern wing will become a public stair—not only an object in space, but a volume one can enter.

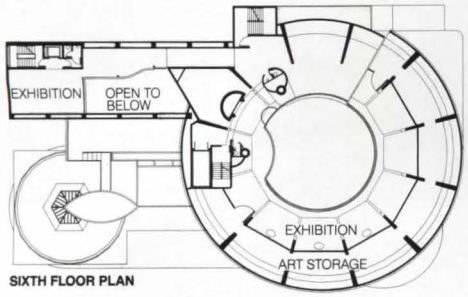
Renovation of the original museum will begin following completion of the new annex. Among the tasks ahead are returning the floors to terrazzo throughout, installing UV-filter glass atop both the large and small rotundas, and rebuilding exterior walls to cure severe condensation ills. In time, the renovation will require closing the entire museum for at least a year.

Demolition already has begun on the enclosure of the 1968 Guggenheim addition, and construction of the new annex will follow immediately. (That work has temporarily relocated art storage and staff into the Thannhauser galleries pictured here.) The earlier four-story addition, designed by William Wesley Peters of Taliesin Associated Architects, was engineered to allow expansion to 10 floors. Now those slabs and columns will become part of the new annex.

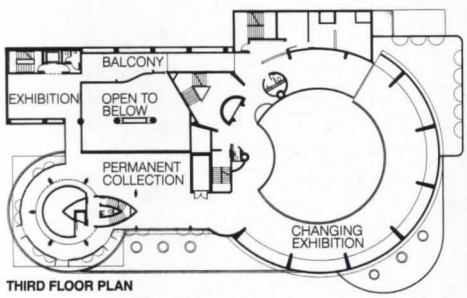
Gwathmey admits he is struck by the irony of the controversy stirred by the new annex. "In 1952, the same people who are complaining about our building were picketing the site and calling [the original Guggenheim] the most outrageous thing that had ever happened to New York." That sort of reaction makes him wary of what he calls "the blind preservation ethic." Gwathmey sees in the history of architecture ample proof that architects can simultaneously re-enrich, reconstitute, and save existing buildings. Early indications of his efforts to reinterpret and amplify the Guggenheim suggest he may be right. ***Vernon Mays*** ■

After years of use for storage, the top ramp of the Guggenheim Museum's large rotunda (facing page) is now exhibition space. Architect Charles Gwathmey says allowing access to the top of the spiral gratifies, among other *things, the natural* desire to reach the summit. Eventually the route will be one of many access points to the new 10-story annex. Visitors to the museum are unlikely to have experienced the unobstructed view (above) from the sixth-floor landing. Renovation of the space included reopening the circular skylights and constructing new vertical walls for hanging art.

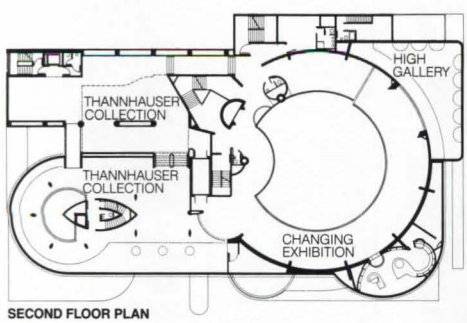




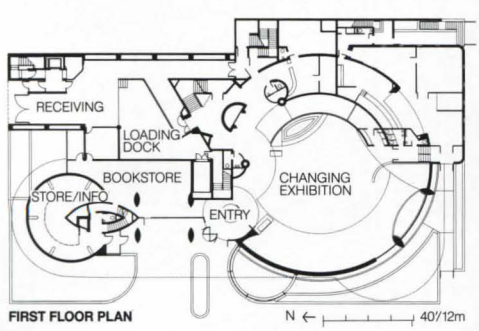
SIXTH FLOOR PLAN



THIRD FLOOR PLAN

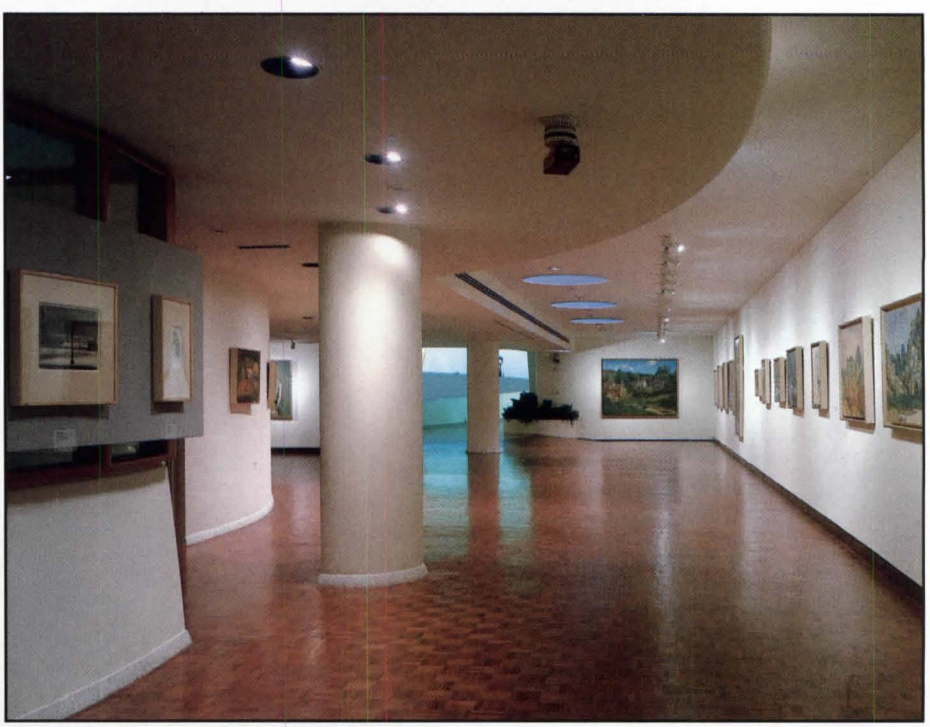


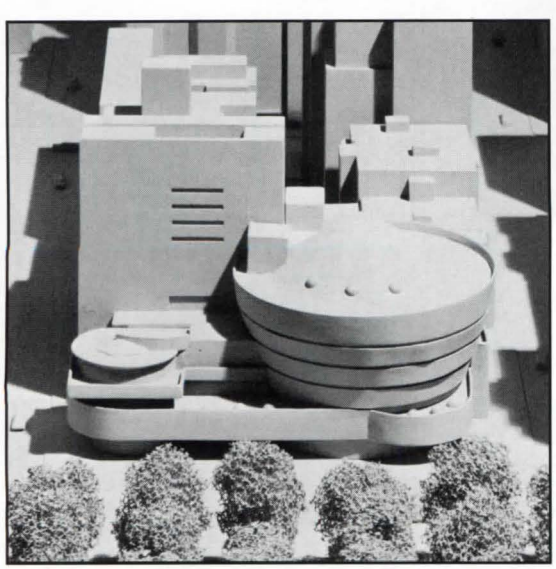
SECOND FLOOR PLAN



FIRST FLOOR PLAN







The single-height Thannhauser Gallery (top) on the second floor is dominated by the presence of a lozenge-shaped stairwell. Partitions that had been inserted over the years were removed to open the space. Renovation included a new, cove-lighted drop ceiling (above) that takes its cue from other Wright details. Original circular skylights were reopened as well. A screen to display small works (at left in same photo) was added in front of the windows surrounding the small rotunda lightwell. Many existing spaces will be assigned new uses after the new annex is completed (plans, above left). The museum's bookstore and information desk, for example, will expand into the first level of the small rotunda. The second floor plan shows the typical condition where museum-goers can exit the spiral and enter an annex gallery by passing behind the triangular stairwell. At the third floor, a person passing behind the triangular stair will enter a balcony overlooking the double-height gallery. A model photograph (bottom left) shows the location of the rooftop sculpture garden that will be accessible from either the fifth floor annex gallery or the top of the lozenge-shaped stair.



The Thannhauser Gallery's new double-height space (above), used for art storage since the Taliesin-designed annex was built in 1968, has been converted to exhibition space. The void between the tall columns was closed to provide a large hanging space. And the lighting scheme is temporary; coffered ceilings and indirect lighting are being studied for use in the finished gallery, which will be one of three double-height galleries in the new annex. Parquet floors used in the earlier addition will be removed and replaced by terrazzo, which Wright used throughout the original.

Project: *The Solomon R. Guggenheim Museum.*
Original architect: *Frank Lloyd Wright.*
Renovation architects: *Gwathmey Siegel & Associates Architects (Jacob Alspector, associate-in-charge; Pierre Cantacuzene, project architect).*
Client: *The Solomon R. Guggenheim Foundation.*
Site: *facing Central Park along Fifth Avenue, between 88th and 89th Streets in New York.*
Program: *Renovation of existing 4000-sq-ft Thannhauser Gallery and adjacent 2500-sq-ft art storage room into expanded permanent gallery space for the Thannhauser Collection; renovation of existing top ramp (formerly used for art storage) into exhibition space.*
Major materials (addition): *Gypsum wall board, plaster, glass fiber reinforced gypsum trim, extruded and spun aluminum edge beads, oak window frames at atrium, walnut wall base at existing parquet flooring (see Building Materials, p. 189).*
Consultants: *Severud, Szegezdy, structural; Feld, Kaminetzky & Cohen, forensic and testing; John L. Altieri, mechanical; Charles B. Froom, museum lighting.*
General contractor: *Target Builders, Inc.*
Costs: *$1.35 million.*
Photos: *Richard Bryant.*

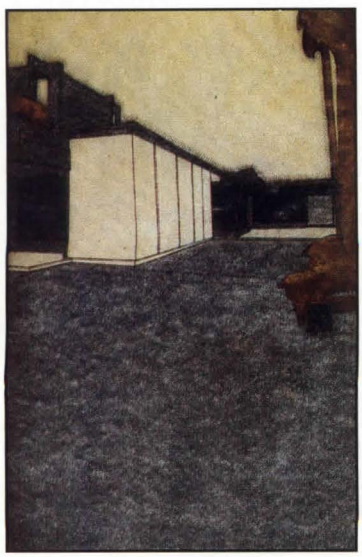
Second Guessing Schindler

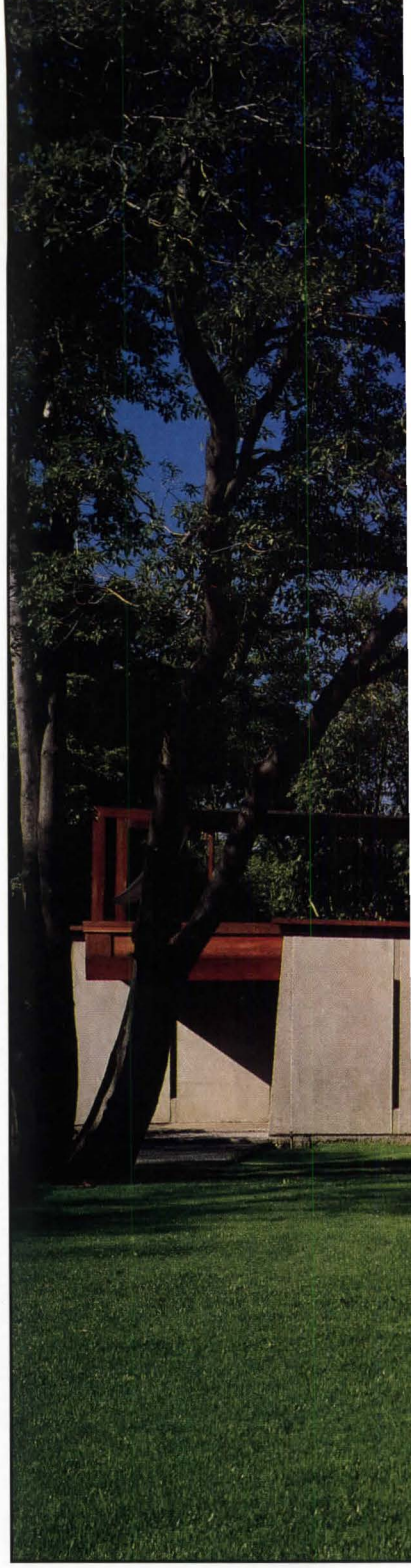
The restoration of R.M. Schindler's West Hollywood, California, house shows the difficulties involved in restoring an architect's own property.

R.M. SCHINDLER'S own Kings Road House, a center of controversy when it was built in 1921–22, continues as such today during its restoration. At the outset, building officials refused to grant Schindler a permit for the experimental, tilt-up concrete structure and work was allowed to proceed with the warning that it could be halted at any point. The plan itself posed a problem for the building inspectors. Four studios of equal size were arranged in pairs around two outdoor living courts, the two pairs linked by a kitchen from which a guest studio projected. The house promised egalitarian living for two couples, the Schindlers and the Clyde Chaces. Sleeping quarters, separated from the studios, were planned as porches on the roof, with access by an outside stair. These sleeping porches—"sleeping baskets," Schindler called them—were originally disallowed by the building department because of the steepness of the stairs to them. The design had to prove itself as construction proceeded, and according to Schindler, inspectors visited the job frequently.

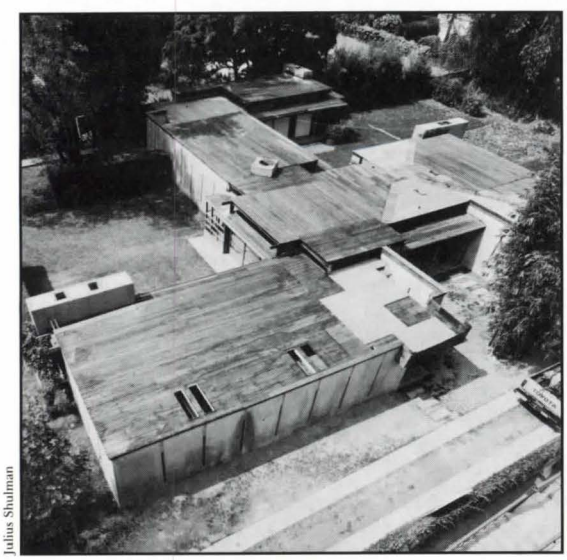
Schindler, who had moved from Chicago to Los Angeles in 1920 to oversee the construction of Frank Lloyd Wright's Hollyhock House, knew the ploys used by architects in bowing to the wishes of building officials and then, after an occupancy permit was granted, bootlegging the disallowed elements. A lightly framed sleeping porch was built over the south studios; a more enclosed version as seen in some of Schindler's early drawings was never constructed. Interiors were finished by Schindler and Chace in the time they could spare from Schindler's practice and Chace's work as an engineer in the Los Angeles office of Irving Gill. During construction, there arose a need for two nurseries. One for the expected Chace child was tucked into the intersection of the walls of the two Chace studios during their construction in 1922. The Schindler sleeping basket was not converted to a nursery until 1923, possibly because of the unexpected drain of funds caused by hospital bills for a premature child and surgery for Mrs. Schindler.

Other changes occurred during the 20s that would affect the design of the house. The Chaces moved to Florida in 1924; the Neutras arrived in California in 1925, moved into the guest studio, and built the north sleeping basket; and the Schindlers separated in 1927. When Mrs. Schindler returned to Los Angeles in the 1930s, the house was legally divided, and she took over the two Chace studios. Schindler kept the two south studios, one for living and one for a drafting room. Pauline Schindler immediately started making changes in her part of the house, painting the redwood and covering the concrete with plywood; the sleeping basket above her north side of the house was turned into a rental apartment with bath. Schindler's reaction to her changes is apparent in his letter to her dated April 8, 1949, in answer to one from her asking him to select a color to paint the exterior redwood. He stated that the house was "a combination of honest materials, concrete, redwood, glass, which were to be left to show the inner structure, and their natural color," and "to paint the exterior redwood . . . would be the final stab in the back."

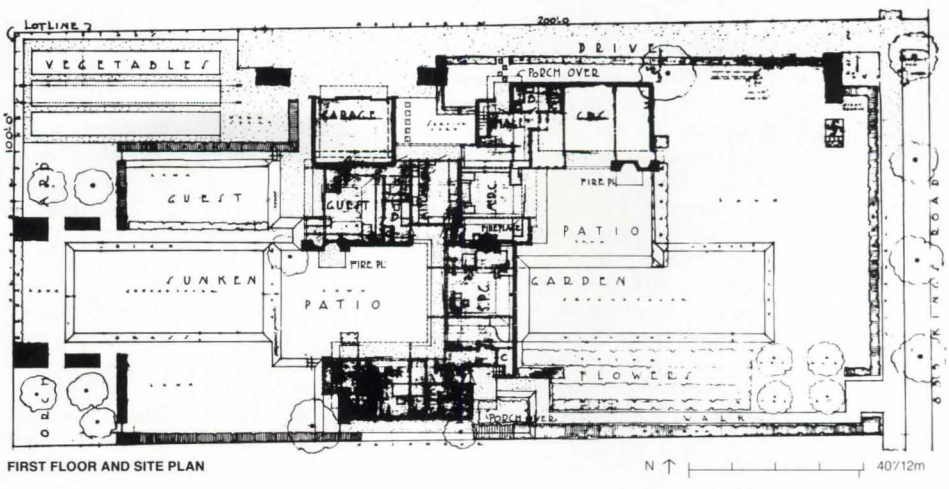




The front of the R.M. Schindler House (above) shows the site before its restoration to the plan of 1922 (facing page, bottom right). Visible above the hedges are the two rooftop sleeping porches. The porches as built differ considerably from what Schindler had in mind when he drew the original perspective drawing of the house (left). A view of the house during the restoration of its roof (facing page, bottom left) shows the pinwheel organization of the house, with two L-shaped studio wings sharing a kitchen, guest suite, and garage in another wing.



Julius Shulman



FIRST FLOOR AND SITE PLAN







Schindler's early perspective drawing, rendered in the Secessionist manner of his mentor Otto Wagner, shows the building at the top of the page in a sparsely landscaped foreground. The house would be very different, he had promised his wife's parents, when the planting had grown up. By the late 1940s, many trees were established and the telephone bamboo had grown.

Over a decade ago, Pauline Schindler called in a group banded together under the name of Friends of the Schindler House (FOSH) to buy the house from the heirs and save it. Restoration work conducted by Peter Snell of Architectural Museum Services has proceeded with results that are generally commendable, with most of the work occurring on the side of the house later occupied by Pauline Schindler; R.M. Schindler's half mainly required cleaning.

The restoration of the west garden has followed Schindler's 1922 site plan, although there is a marked disparity between it and the overgrown garden of the 1940s. With most of the trees removed and a minimum of planting, the house looks more like an object in space than something tucked into the landscape.

A $50,000 grant from the City of West Hollywood in 1986 finally permitted the important work of reroofing to begin. Several important decisions were made on the restoration of the Kings Road house at a board meeting in March 1986. One had to do with the sleeping baskets, followed soon after this with a cut-off date to which changes were to be held. The date was set at June 6, 1922. This would take the south sleeping basket back to before the point when it was enlarged as a nursery. The date would include the Chace nursery. But, inexplicably, it also would include the 1925 Neutra version of the north sleeping basket.

The restored sleeping baskets with their light wood framing are disappointing, judging from other Schindler sleeping porches of the period, such as those for the 1923 Pueblo Ribera housing in La Jolla. It seems evident from his original rendering that Schindler had wanted the redwood construction of the inset doorway to lead up in stages to a more massive superstructure.

The Friends of the Schindler House have stated that their goal has been to return "the Kings Road House to its original concept." But, by adhering strictly to physical evidence they have overlooked Schindler's vision of the house as revealed in the original perspective and in the later changes that Schindler himself made. ***Esther McCoy*** ■

The author, P/A's correspondent in Los Angeles, is on the Friends of the Schindler House Board of Directors.



Schindler's studios (facing page) were essentially intact and mainly required repairs and cleaning. Much of the original 1922 furnishings for the house, designed by R.M. Schindler, are on loan from the Schindler family; missing pieces have been replicated. The rear garden has been restored (above) and the glass walls and sliding canvas screens facing the yard have been repaired or rebuilt. The roof, too, has been rebuilt, and skylights and utility lines added to it later have been removed.

Project: *R.M. Schindler House, West Hollywood, Calif.*
Original architect: *R.M. Schindler.*
Restoration architects: *Architectural Museum Services/Peter Snell, Los Angeles.*
Client: *Friends of the Schindler House.*
Site: *100 x 200-foot city lot facing east with a slight slope to the southwest.*
Program: *Restoration of 3452-sq-ft house and garden.*
Structural system: *tilt-up concrete wall construction with redwood-framed roof.*
Major materials: *Exposed concrete, redwood, glass, canvas (see Building Materials, p. 189).*
Consultants: *Emmet L. Wemple, landscape; Kyle Braunger, landscape installation; Robert Nicolais, Robert Sweeney, Architectural Museum Services/Peter Snell, Moore Ruble Yudell (Buzz Yudell, Tina Beebe), Lauren Kasmer, Katherine Rennie, Archival Framing Services/Peter Christian Haberkorn, interiors; Architectural Museum Services/Peter Snell, structural.*
General contractor: *Lawrence E. Winans.*
Photos: *Grant Mudford, except as noted.*

Commonwealth Building Lobby
Portland, Oregon



Repairing Progress

In returning to restore much of the original lobby of a landmark, Pietro Belluschi joins Soderstrom Architects in a careful materials search, and finally creates a mural he intended for the space in 1948.

LANDMARKS, as we know, seldom possess immunity from the ravages of "progress." Although Portland's Commonwealth—formerly Equitable—Building by Pietro Belluschi was accorded the AIA's 25-year Award in 1982, parts of it were hardly original when that august honor was bestowed. Creeping change had already begun to take its toll, and some of the makeovers were at best in questionable taste, and unquestionably wrong.

Belluschi, awarded the Gold Medal of the AIA in 1972 and still retaining a limited practice at the age of 89, had avoided visiting the building because its erosions troubled him. Modifications had remained minor until the early 1970s, when the lobby was demolished and expanded from one to two bays in width, shifting the entry one bay to the south and requiring a change in floor levels to match the grade change outside.

In 1987, the building owners asked Soderstrom Architects to study a further remodeling effort, but because of the building's significance, the architects contacted Belluschi to see if he was interested in participating in the project. He agreed to do so, and he and the Soderstrom team approached the owners, convincing them to restore the lobby.

It was not possible to return the lobby exactly to its original configuration. A bank that was a major tenant in the building still required a teller's counter off the lobby. Nor was it possible to keep the lobby canopy as the central focus of the main façade (there were no canopies originally) since another ground floor bank required its own covered entry. But in almost every other respect, the lobby has been faithfully restored.

When it was originally constructed, the Equitable lobby featured a blue-green glass wall and an aluminum ceiling with cold cathode lighting. Since the Carrera glass wall surfaces had been altered and the rivet-studded ceiling removed, the architects and Belluschi studiously pored over materials that could reproduce the effect of the originals, which were no longer available. Soderstrom principal Doug Walton and project designer Ron Preston recall that Belluschi was unerring in his selection of the glass colors he specified over 40 years ago.

To recreate the ceiling, the architects found it essential to install panels that could be removed, unlike the original fixed units. This necessitated the use of simulated rivet-connected modules, prompting the contractors to suggest replacing HVAC grilles with more up-to-date versions. The cold cathode lighting also required vigilance to reestablish its original detail.

The coup, however, was the mural. Belluschi termed the mural that had been originally installed "a 1948 compromise." The lobby's reconstruction gave him the opportunity to return to his first mural design from which he and the owners had retreated 40 years ago. It is a rare occurrence when an architect is called back to finish a project that he once poured his heart into. The mural Belluschi initially wanted to see in this lobby is now in place, designed by him in a Calder vein with all the enthusiasm of the earlier scheme. Before the public unveiling, the architect was availed of an opportunity to view the "finished" work, during which he made a few on-site adjustments to the curving forms; they have been incorporated in the final version. His initial objections to the reproductions sold by local groups to commemorate the completion of the original piece—he feared that it might be called "art" in such circumstances, something he wanted to avoid—finally were overcome, and he seemed delighted to sign the actual piece at last.

The lobby should serve as a model for the rest of the building; it has been scrupulously restored by a talented team to as nearly as authentic a condition as can be expected given the current uses. There are still some remaining signs of "progress" on the building's exterior that could use attention. But both the owner and the architects deserve recognition for their integrity in bringing this project to a happy solution. None of it was cheap, and it could have been done slap-dash. But it wasn't.

Jim Murphy ■

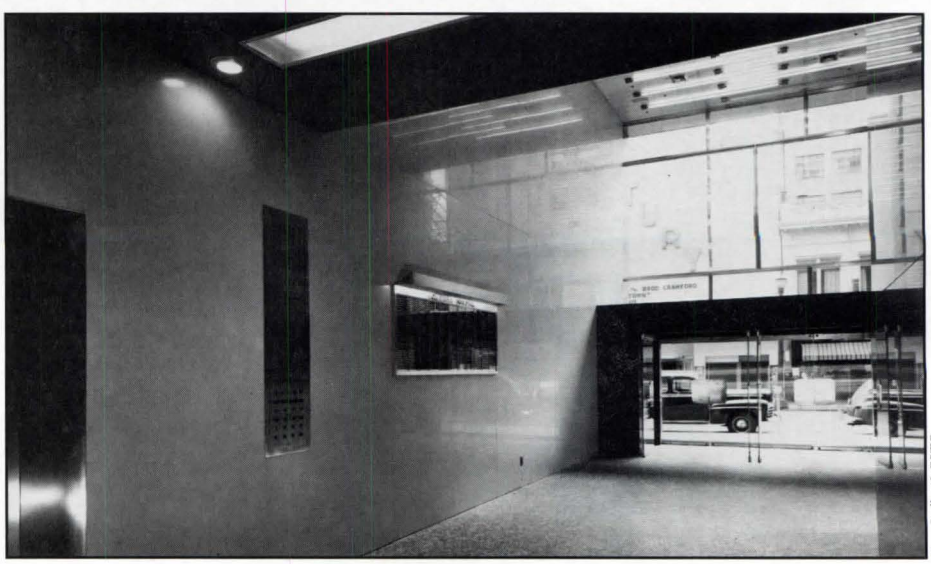
The exterior of the former Equitable Building today (above) looks very much like it did in 1948. Lobby walls (facing page) are of 3/16 inch tempered glass, back-coated in blue and taupe, replacing the original surface-colored Carrera glass, which is no longer available. The result is a wall with a new dimension of depth. Belluschi's new floor pattern of alternating light and dark Italian tile creates a more linear effect than either the original one-inch mosaic tile or the interim slate surfaces. Two new risers negotiate the difference between the lobby and the bank floor levels.







Ezra Stoller © ESTO

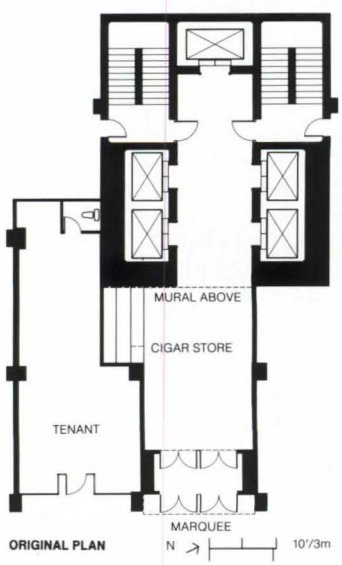


Ezra Stoller © ESTO

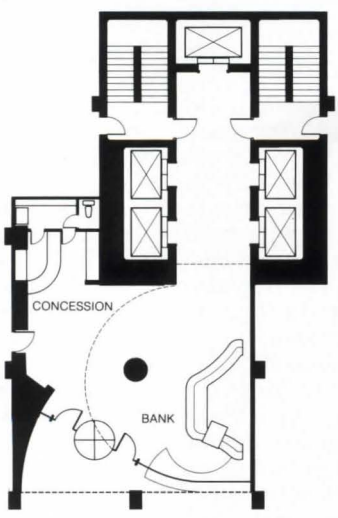


Belluschi's new 10 by 27-foot canted mural (facing page, top), influenced by his late friend Alexander Calder, replaces the 1948 "compromise" (facing page, bottom left). A second Belluschi design, two concentric gray squares, marks another canted panel over the bank lobby, and will form the backdrop for a Calder mobile, if one can be found. Comparing a 1948 lobby photo (facing page, bottom right) and the current one on the preceding page, it is obvious that much care was taken by the architects in restoring the space, including the building directory. All of the glass wall panel joints have now been meticulously aligned with those of the ceiling units. The original vending counter was relocated behind the elevators at the back of the banking space in the interim remodeling; it retains that position now but in a cleaner plan configuration. The junction between the blue glass wall, the mural, and the clear mill-finish aluminum ceiling (left) is a particularly rich one. The architects credit the "extreme patience and attention to detail" by Lew Newman of Rural Electric Company for making the cold cathode lighting system a success.

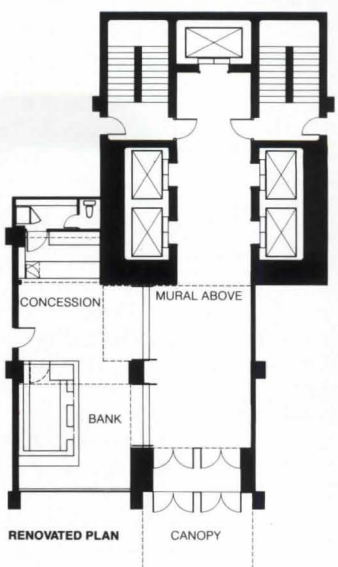
Project: *Lobby renovation, Commonwealth Building, Portland, Ore.*
Original architect and design consultant for restoration: *Pietro Belluschi.*
Restoration architects: *Soderstrom Architects, Portland (Doug Walton, principal in charge; Ron Preston, project designer).*
Client: *Landsing Diversified Properties II.*
Program: *reestablish the original spatial volume of a mid-block public office building lobby, and provide a lobby banking facility, repeating the original materials choices as closely as possible.*
Major materials: *mill finish aluminum, back-coated glass wall panels, ceramic tile floors, and tinted exterior glazing (see Building Materials, p. 186).*
Consultants: *KPFF Consulting Engineers, structural; Interface Engineering, mechanical and electrical.*
General contractor: *R&H Construction Company.*
Cost: *$408,000, including exterior canopy, granite cladding, and pavers outside.*
Photography: *Ed Hershberger, except as noted.*



ORIGINAL PLAN

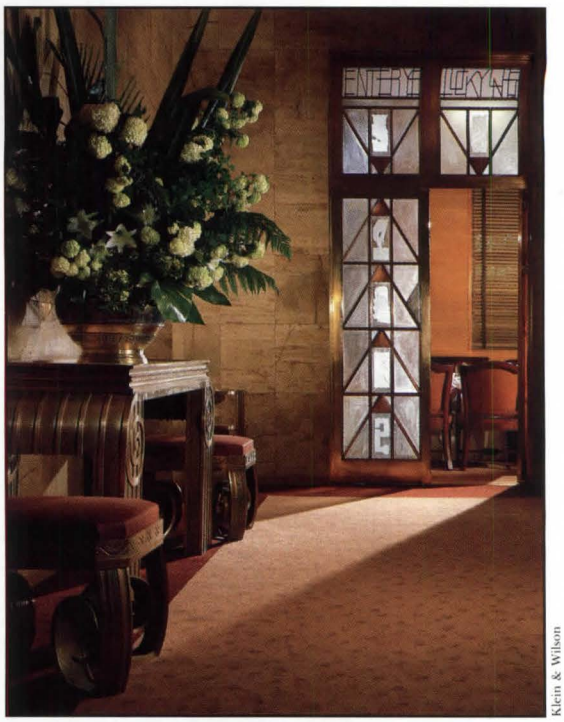


INTERMEDIATE PLAN



RENOVATED PLAN

Joining the Club



Klein & Wilson

Architect Patrick McGrew shows in the San Francisco City Club that good restoration work demands as much imagination as it does taste.

WE "leave our egos at the door," said architect Patrick McGrew in 1987, when commissioned to restore the 1930 San Francisco Stock Exchange Lunch Club as the new City Club. "We should restore, clean, and change as little as possible in order to return the club to what it was 57 years ago."

McGrew had to make changes nevertheless, since, unlike its predecessor, the City Club welcomed women members. He remodeled some coatrooms to create a women's lounge, and moved the bar, hidden because of Prohibition in a cavelike room next to the cardroom, out into the main room. Adding a small dance floor and re-equipping the kitchen completed the major alterations.

McGrew's approach to the design of the bar reflects the current preservationist attitude toward inserting new construction into historic buildings. "I didn't think we should try to do a 30s-style bar in a setting so rich in authentic period details and materials," he says. "It couldn't have measured up. But we didn't want to do a competitive design in, say, hi-tech either. We also had to work with the Secretary of the Interior's standards for restoration and make whatever we added removable. So the design of the bar is a deliberate understatement.

The decision not to copy or compete seems wise. Architects J.R. Miller & Timothy Pflueger had designed the original club as an expression of the high-rolling 20s, employing not only a costly range of materials, but a number of artists and artisans who executed original works for the club. The interiors, consisting of the ground-floor lobby and the 10th and 11th floors of the Stock Exchange office building, were completed in 1930 for about a third of a million Depression dollars—a bargain by present standards. Today, materials such as Monel (an acid-resistent alloy of nickel, copper, manganese, silicon, and carbon) and gunmetal would almost have to be reinvented, and craftmen would have to be trained to execute the handiwork. Even though qualified artisans were found to restore materials such as etched glass, a lot of on-site training occurred in the months of cleaning, polishing, and general refurbishing. The calfskin parchment covering wall panels in the main lounge was mostly cleaned and restretched in place over its wood forms. New carpets of contemporary designs were installed, and furniture was recovered with appropriate fabrics.

If the club's high-style decor drew upon the stylized vocabulary of Art Deco, the local artists introduced a note of 1930s realism in carved reliefs, metalwork, and painted panels of people at work and at play. Overshadowing these appealing, low-key contributions is Diego Rivera's stairwell mural, *Riches of California,* which rises 30 feet up the wall and across the ceiling to command the main stairwell. McGrew has reinforced the mural's blue, green, and other colors in the new furniture fabrics.

The tonal quality of the interior strikes a fine balance between the warmth of the travertine walls in the stairwell and elevator lobby and the cooler quality of the main spaces on both floors. The new designers have enhanced the surprisingly flat, original lighting of the main spaces by putting a mirror film on the false windows that complement the real ones on the opposite sides of the rooms, creating a feeling of being in an airy, daylighted space. This is enhanced by the shimmer of the gold- and silver-leafed ceilings, lighted by torchieres placed at intervals along the walls of the main rooms. Indeed, these fixtures bring out the opalescence of their ceiling surfaces so magically at night that their omission from the original design is puzzling.

Although the refurbishment and discreet alterations that McGrew and his associates successfully carried out for the City Club may seem pro forma in the telling of it, design for historic preservation is no more static than design in general. For restorations that must respond to programmatic changes, the currently approved method no longer seeks a seamless fit between new and old, but rather distinguishes the present from the past. Is this best accomplished through a radically different appearance—a collision of old and new? A subtle transition that borrows from both? The answer of course depends upon the situation, although at the City Club, the latter was the right way to go, showing that a contemporary vision can invest the past with new eloquence. Yet whatever direction one takes we can be certain that future eyes will see things differently. History is going to happen to buildings no matter what rules we make either for repeating the past or keeping it in its place. ***Sally Woodbridge*** ■

The author, P/A's San Francisco correspondent, has written several books including California Architecture.

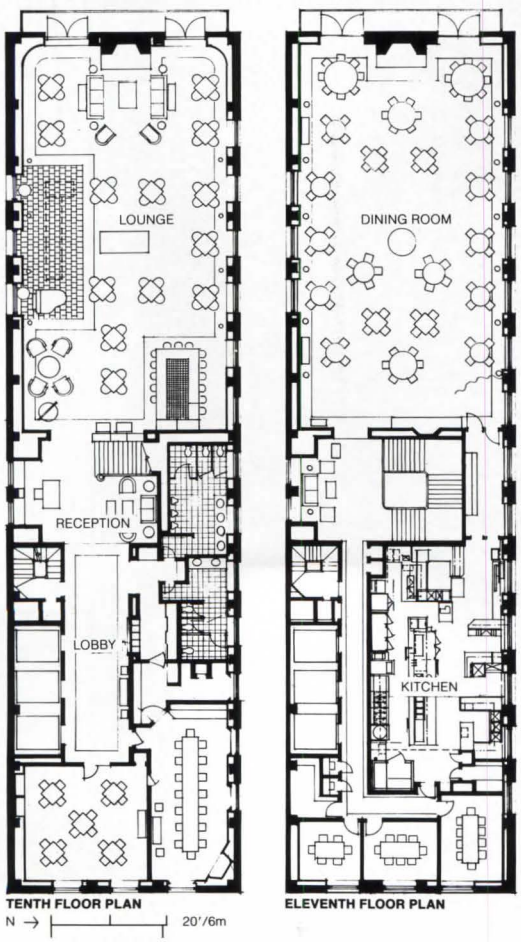
The leaded glass, travertine walls, and Art Deco table and chairs in the elevator lobby (above) are typical of the original furniture and finishes in the City Club. The club's focal point remains the Diego Rivera mural in the stairwell (facing page) entitled the Riches of California. California, personified by tennis star Helen Wills Moody, is flanked by images of the state's industries, including gold mining, agriculture, and shipping. Robert Boardman Howard, son of architect John Galen Howard, designed the chrome-on-brass railing with its silhouettes of men in various dress climbing the stairs.



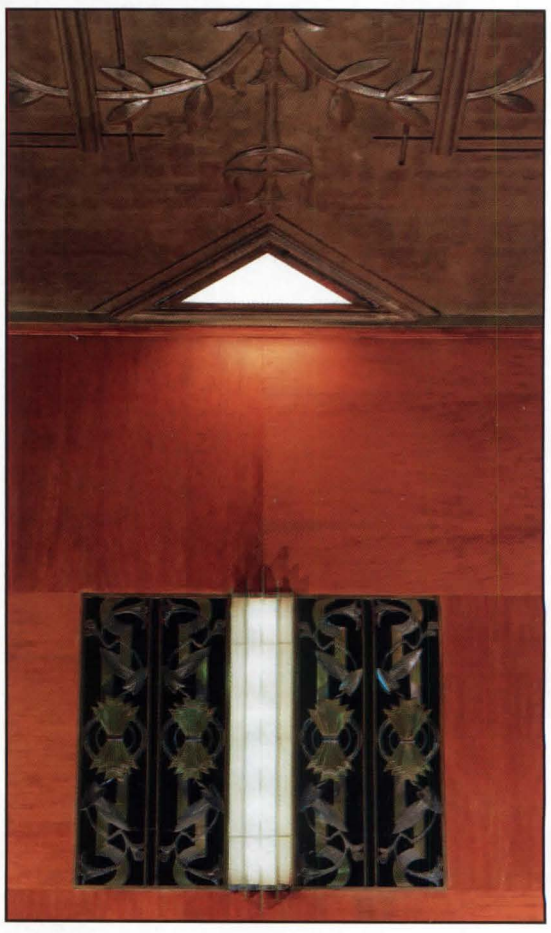
The City Club has a lounge (facing page) on the 10th floor of the Stock Exchange Building that features a sandstone mantelpiece showing an archer surrounded by animals expressing the various moods of man. It was carved by Robert Stackpole. The silver-leaf ceiling has a geometric and foliate pattern accented in green. Among the new additions to the club are the piano and dance floor, upon which the buffet stands. The 11th floor dining room (right and bottom right) has wood-paneled walls and a gold-leaf ceiling with silver-plated vents and recessed light grilles. The mantel has signs of the zodiac designed by Michael Goodman cast in bronze and plated with gunmetal. Belgian blue marble frames the firebox.



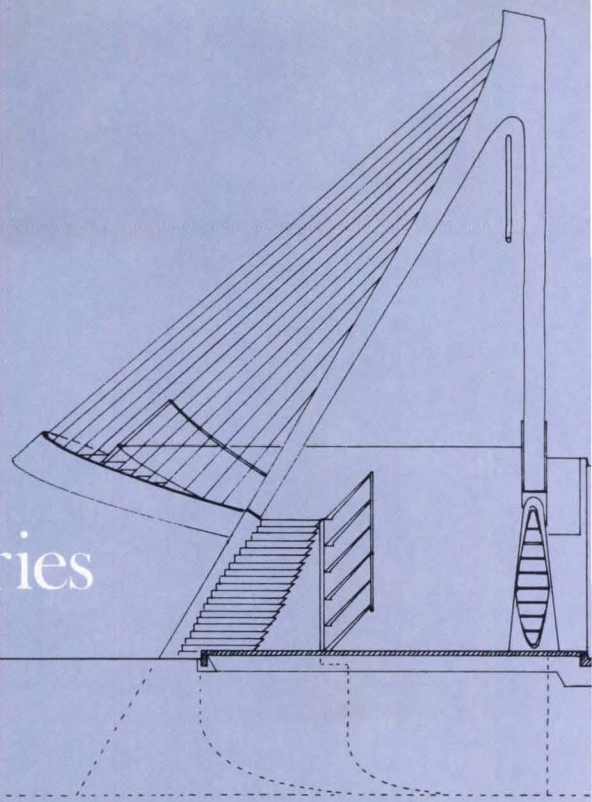
Project: *The City Club of San Francisco.*
Original architects: *Miller & Pflueger.*
Restoration architects: *Patrick McGrew Associates, Architects, San Francisco.*
Client: *The Empire Group (Richard Mendelsohn).*
Site: *Approximately 13,000 square feet on the 10th and 11th floors of the 1930 Stock Exchange Tower.*
Program: *Refurbishing all public spaces, upgrading the kitchen, and adding a dance floor, bar, and women's restroom.*
Major materials: *Travertine, silver and gold leaf, wood paneling (see Building Materials, p. 189).*
Consultants: *Architectural Designers, Inc. (Harold Young, Carolyn Davis), Interiors.*
Costs: *$1 million.*
Photos: *Mark Darley, except as noted.*



TENTH FLOOR PLAN **ELEVENTH FLOOR PLAN**




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P/A Technics
Crossing Boundaries

In his wide-ranging work from bridges to nightclub interiors, architect-engineer Santiago Calatrava blends a variety of cultural traditions, while blurring the line separating two professions.

SANTIAGO CALATRAVA is a border-crosser by background, education, and inclination; that is, he transcends and manipulates the limitations of cultures and fields. He manifests the ambivalence of his birthplace Catalonia, the most European of Spanish provinces; he incorporates the unusual heritage of Catalan thin-shell construction explored in the work of Antonio Gaudí; he shares the Swiss interest in monolithic concrete structure; and he exploits the dialectic relationship between two often antagonistic building professions—engineering and architecture. It's a tall order. And when all this is compounded by a talent for spatial, formal, and structural expression, by an extraordinary facility with languages and the subtleties of cultural variation, and by a driving need to work and create, the result is complex and wonderful.

Calatrava was born in Barcelona in 1951. He studied at art schools in Catalonia and Paris both before and during high school. In 1969 he opted for architecture, which he studied at the Escuela Tecnica Superior de Arquitectura de Valencia. He took the national prize for his master's thesis in 1973 and continued with postgraduate work in urbanism in Valencia. It was from this period that Calatrava's interest in transformable structure stems. Casting about for a place to learn more, he chose the Swiss Federal Institute of Technology in Zurich, primarily because it was there that he could study with Christian Menn, the foremost exponent of the Swiss concrete engineering tradition begun 75 years before by Robert Maillart.

At the ETH, as the Swiss institute is called, Calatrava was full of disturbing questions and exhibited an incredible capacity for work. His enthusiasm, maturity, and natural gifts impressed his professors. But no one could foresee whether these traits would carry him beyond the academic setting into a professional one. In 1979 he finished his Master's thesis in engineering with a bridge designed under the tutelage of Menn. Following a study tour of the U.S., Calatrava returned to the ETH and, in two years, wrote a doctoral dissertation on transformable structures in the Department of Architecture. While there, he created a sensation by suspending from the interior dome of the ETH a giant plastic donut filled with tons of water. Hung 50 feet high by steel rope from the ribs of the dome and used for an impromptu dip by faculty, the half-torus form was an early exploration by Calatrava of the relationship between shell and tension cable. He proved himself a gifted teacher, as well, and many regretted when he left to open his own office in 1981.

The basis of Calatrava's success since then lies in the appropriateness of his interests in current building problems. His role has been one of bridging the gap between the engineer's preoccupation with process and the architect's interest in results, a gap that has begun to narrow as architects become more concerned with demonstrating movement, process, and frozen transformation. Most often their concern expresses itself in a banal choice of iconography, a matter of style. With Calatrava it is the very foundation of his border-crossing concern with building creation (see Books, p. 121).

Through his work Calatrava has created an iconography of movement even more succinct than did Eero Saarinen in the TWA Terminal at J.F.K. Airport. Saarinen evoked the emotional image of flight. Calatrava simultaneously demonstrates movement and a logical flow of stress in a structure. As he continues to develop, there are ever more themes that recur from one design to another, becoming enriched through repetition. For instance, the steel tension cable combined with the concrete shell in compression and shear is surfacing in his work in a way that could not have been foreseen in the aerial swimming pool at the ETH. And while such composite structures are common in bridges and highrises, they have rarely been expressed.

Calatrava occasionally succeeds in elevating the banal to the level of an architectural icon. The forms he develops are neither deterministically "structural" nor are they *gratuitous*. Their logic is complex, their meaning is many-leveled. Nothing is facile, and there is great humor in what he does. Few designers reach such a high level of sophistication as does Calatrava, and even fewer in such a brief body of work. It is exciting to follow his path as he reveals, with each succeeding project, new layers of complexity in the ones that went before.

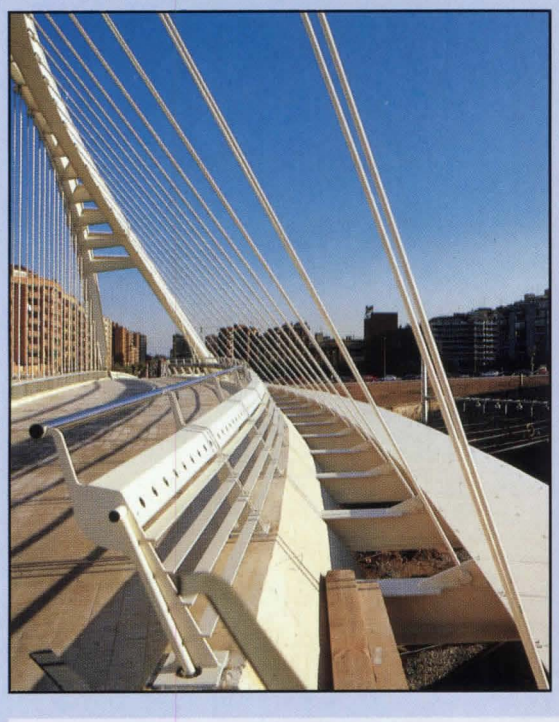
Tom F. Peters ■

The author is director of the Institute for the Study of the High-Rise Habitat, Lehigh University.



Bridge
Barcelona, Spain

Spanning a railway that divides a central area of the city, the canted twin steel arches of this bridge (left and drawing, facing page) create a monument in the urban landscape. Yet the bridge's function as the focal point of a new urban park and the link between two major streets obediently serves a larger redevelopment scheme. The roadway and sidewalks are suspended from each arch by two lines of cable (below left) that define an urban space. Stairways following the curve of the arches (below right) descend to the level of planned passenger stations and park grounds on each side of the tracks. The side stabilizing steel arches are the structural continuation of the concrete access stairs.



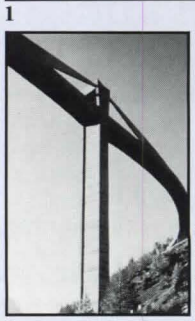


Photos: Paolo Rosselli, except as noted



Collection D. Billington

1



Christian Menn

2

CALATRAVA: IN CONTEXT

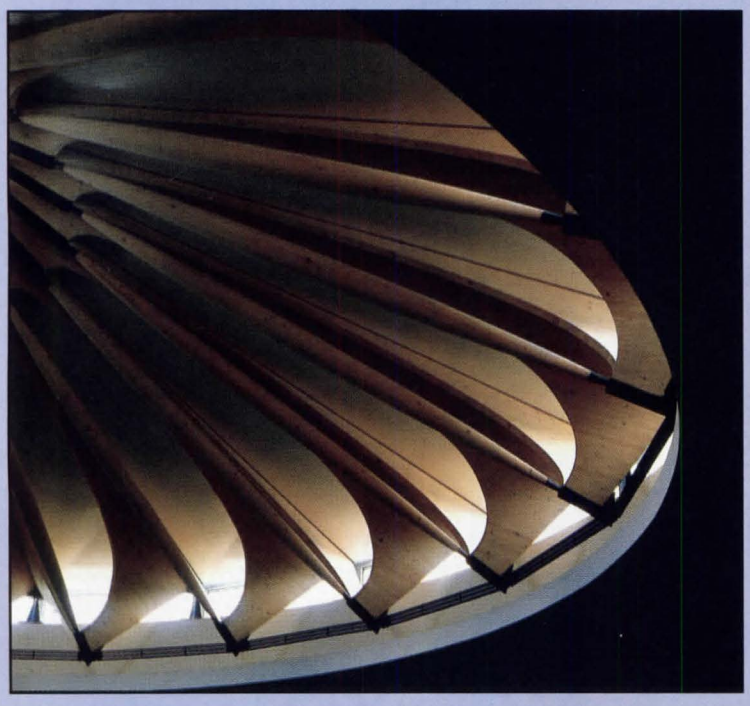
Since it first surfaced about a century ago, monolithic structural behavior has been one of the great building themes of our epoch. Robert Maillart was among the first to have seen the formal possibilities of monolithic reinforced concrete construction. While others were pursuing similar themes, it was Maillart who envisioned the expression of concrete's monolithic characteristics in a new way. Maillart proceeded from the physical characteristics of the material rather than from preconceived notions of form or structural type. His "deck-stiffened arches" (1) and box-beams had no precise names since they did not follow the analytical models established by 19th Century French engineering theoreticians.

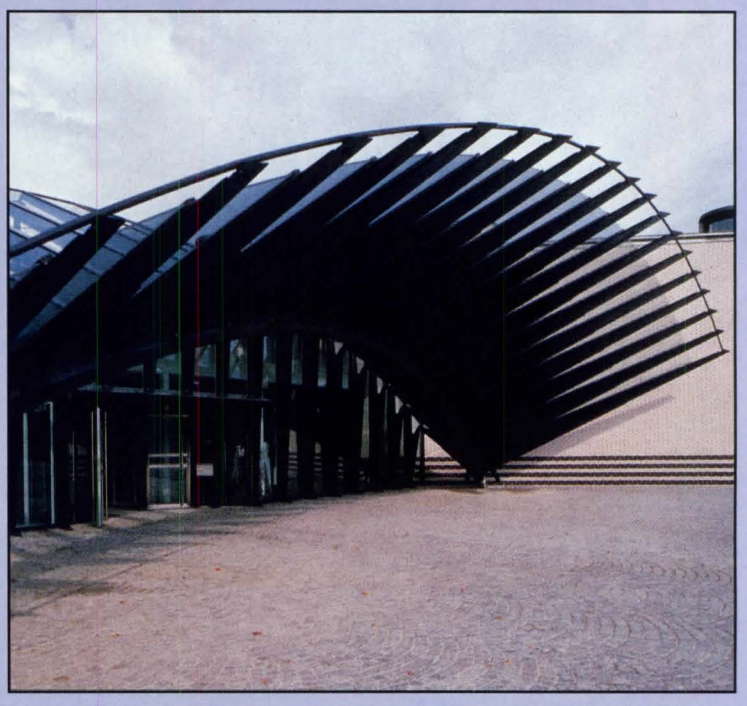
Maillart's emphasis lay on a concept, that of monolithic behavior and how it translated into form and structure. Christian Menn sees himself as a disciple of Maillart, but follows a different bias. Menn's early structures derived from Maillart, but he advanced the concept by his preoccupation with the process of building, particularly with making bridges less expensively. Thus Menn gradually simplified his formwork from arches to beams, finally abandoning formwork altogether in 1979 in the cantilevering construction of the Felsenau Viaduct near Bern. Menn's interest in form generated through the medium of a building process led to the design of the Ganter Bridge (2) of 1982 in Switzerland. Here, instead of pulling the cantilevering forces down into the piers as he had done in the viaduct, Menn hung cables from the towers above. The result was less expensive and a novel form. From preoccupation with the expression of monolithic construction, engineering thought had progressed to include the aesthetics engendered by the building process itself.

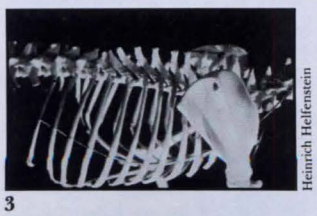
High School
Wohlen, Switzerland

Calatrava designed four roof structures, each different in concept, for the school's communal spaces. The arch form of the entry canopy (below right) is a triangular girder to which glass-supporting ribs are attached. The entrance hall (below left) presents the image of a tent. Sheathed in opaque glass, its roof is constructed of laminated-wood girders, cables, and steel spindles. A thin concrete shell resembling an open book covers the library (right), where four vaults converge on a single spindle support. A variation of the folded-plate girder is the great hall (facing page), where individual wood girders are linked by an articulated structure. The architects are Burkhart, Meier & Steiger of Baden.



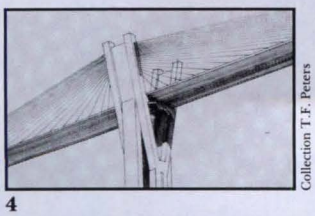






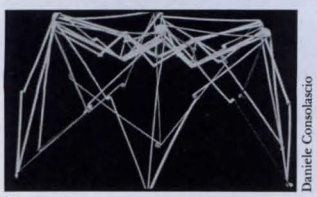
3

Heinrich Hellenstein



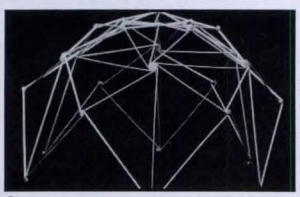
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Collection T.F. Peters



5

Daniele Consolascio



6

Daniele Consolascio

The youngest exponent of this intellectual heritage is Calatrava. He is interested not only in the problem of showing process in the product, but also in demonstrating change and development in static form. He overlays his concern with Maillart's expression of monolithic structure and Menn's building process to create what, for lack of a precise term, one might call "articulated monolithic" structure. The dog skeleton Calatrava keeps beside his drafting table (3) embodies this novel structural concept. Skeletons are articulated and move, though they carry their loads as if they were monolithic. As such, the skeleton reflects his interest in monolithicity and the transformation of form in repetitive elements.

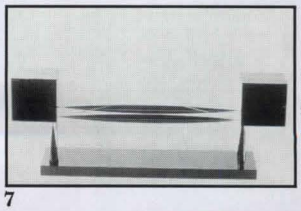
Trained as both architect and engineer, Calatrava is equally interested in form and process. His sketches based on Menn's Ganter Bridge (4), drawn when in his final year of engineering at the ETH, show forms that intend to demonstrate the process of their own genesis. This interest in form quickly evolved into an interest in transformation, in the mutability that has since become articulated monolithic construction. As Calatrava showed in the mobile structures he built while a student in Spain (5, 6), a transformation can demonstrate a possi-

ble flow of force and its path through a structure, or it can lead to transformable geometries and the physical mobility of structure.

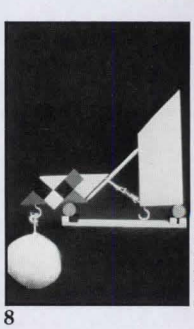
This interest in mutability shows in Calatrava's abstract experimental models (7, 8, 9) which demonstrate a disturbing relationship between stable and unstable equilibrium. They have been called sculptures and exhibited as such, but in reality they are experiments in structural concept, similar to Buckminster Fuller's "tensegrity" but more attractive in form and material. These experiments bear resemblance to Gaudí's articulated tensile study models, in which he inverted representations of compressive stone frames to study them in tension.

The difference is that Calatrava shows both halves of a dialectic relationship simultaneously, whereas Gaudí uses the two aspects consecutively. Gaudí, working synthetically, was interested in achieving a resultant structure. Calatrava is interested in studying the ambivalent relationship analytically. Gaudí needed photographs to demonstrate the pre-existence of the inversion in the product; Calatrava does not.

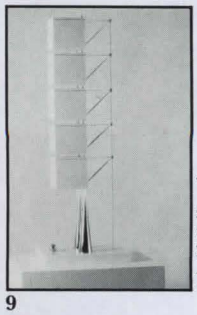
Repetition, variation, and articulation are the basic elements of Calatrava's work. His photographs of the dog skeleton



7 Heinrich Helfenstein



8 Daniele Consolascio



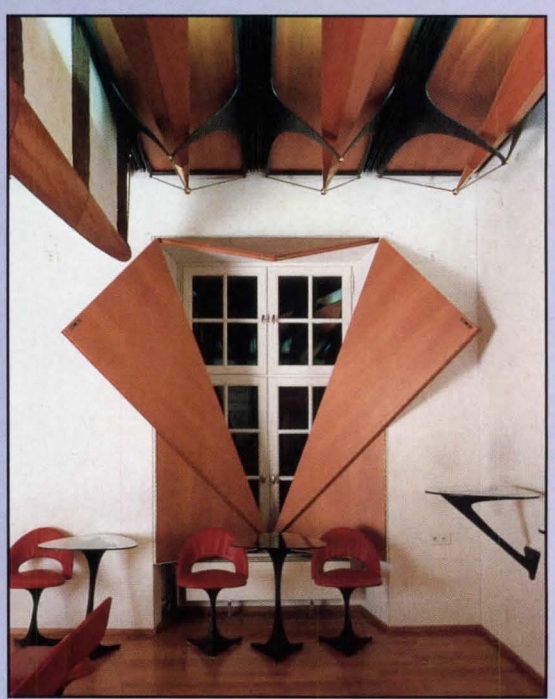
9 Heinrich Helfenstein

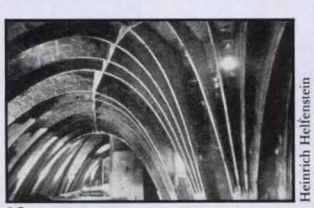
Tabourettli cabaret
Basel, Switzerland

Patrons of this theater are greeted by a descent along the steel-and-glass entry stair (facing page). Calatrava's fascination with movable forms is played out at many points here. In the cloakroom (right), steel-and-glass panels swing open to reveal coat hooks. Racks for glasses at the bar swing closed to secure the area (below left) when not in service. Shutters in the main auditorium (below right) are also of Calatrava's invention. The auditorium was rebuilt in such a way that three pillars had to be removed, necessitating a suspended roof structure. A portion of it can be seen above the window. Furniture, tables, stools, and lamps for this project were custom-designed by Calatrava, as well.

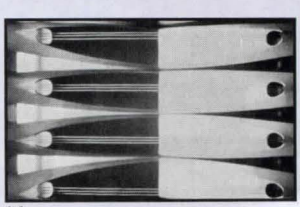








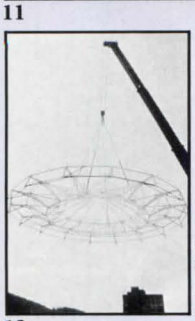
10 Heinrich Helfenstein



11 Frank Neumann



12 Meinrad Hirt



13 Meinrad Hirt

capture it as repetitive and variable structure—not sculpture, as did Henry Moore with bones, nor as linear movement, as did Alberto Giacometti with the dog form. The connection between Calatrava's view of the skeleton and his understanding of traditional Catalan vaulting (10) is clear from his own photographs. The vault, a thin shell of tile and a plasterlike mortar, exemplifies a proto-form of both the concept of "articulated monolithicity" and unstable equilibrium. Calatrava often speaks admiringly of it.

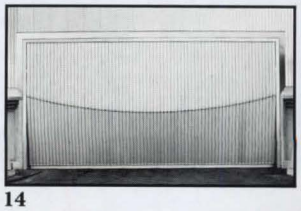
But there is a fine line between the fatuity of quotation and the delight of translation, and Calatrava masters this subtlety. The evocation of a musical instrument in the "mandolin" roof structure (11) of the multipurpose hall in Suhr, Switzerland is no one-liner; the analogy is amplified by the play of tension cables and shells, and by the way light enters and qualifies the space.

Calatrava's fascination with the formalization of process and translation was already clear in his unrealized 1981 proposal for the Züspa Exhibition Hall in Zurich, evidenced especially in the glee with which he spent nights designing the movement of the cranes and trucks that were to deliver and erect the prefabricated hall. His passion is evident in the sup-

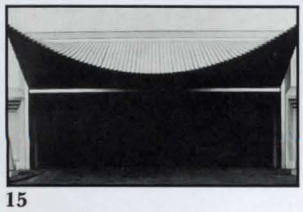
porting structure of an office building in Suhr. Part and whole, the articulation and mobility of the skeleton are discernible in the building's assembly (12) and detailing. The raising of the dome (13) reflects the unstable equilibrium of his experimental models. And, even though the outer form of the building was predetermined by another architect, the visually unstable equilibrium of the base is a Calatrava hallmark.

Finally, at a factory in Coesfeld-Lette, Germany, Calatrava took the wave form of the cladding and its conic section at the concrete base (17) and used them dynamically. In the process he reinvented the garage door, giving it a novel function, that of canopy. The result was a new sculptural and technical dimension and a surprising visual delight (14, 15, 16). At the same time, he substantially advanced the concept of "articulated monolithicity" and demonstrated the art of translating form. The experiments with stable and unstable equilibrium; the preoccupation with repetitive elements, movement, and translation; the articulated and yet monolithic skeleton; and the structural forms of Catalan vaulting are all inherent in this garage door. It is not an idea that came to fruition here, but a personal culture of building.

Tom F. Peters ■



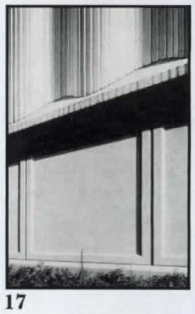
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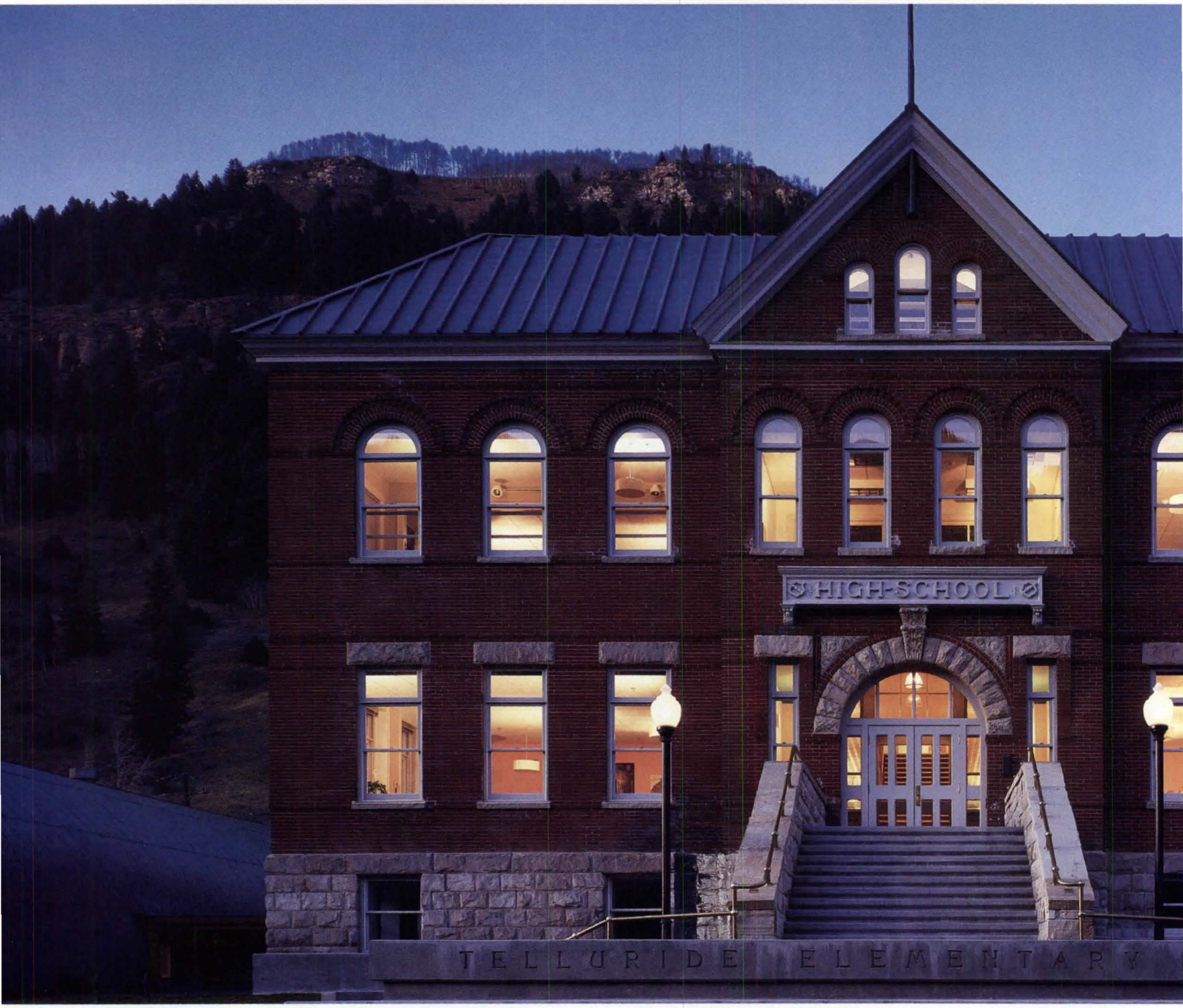


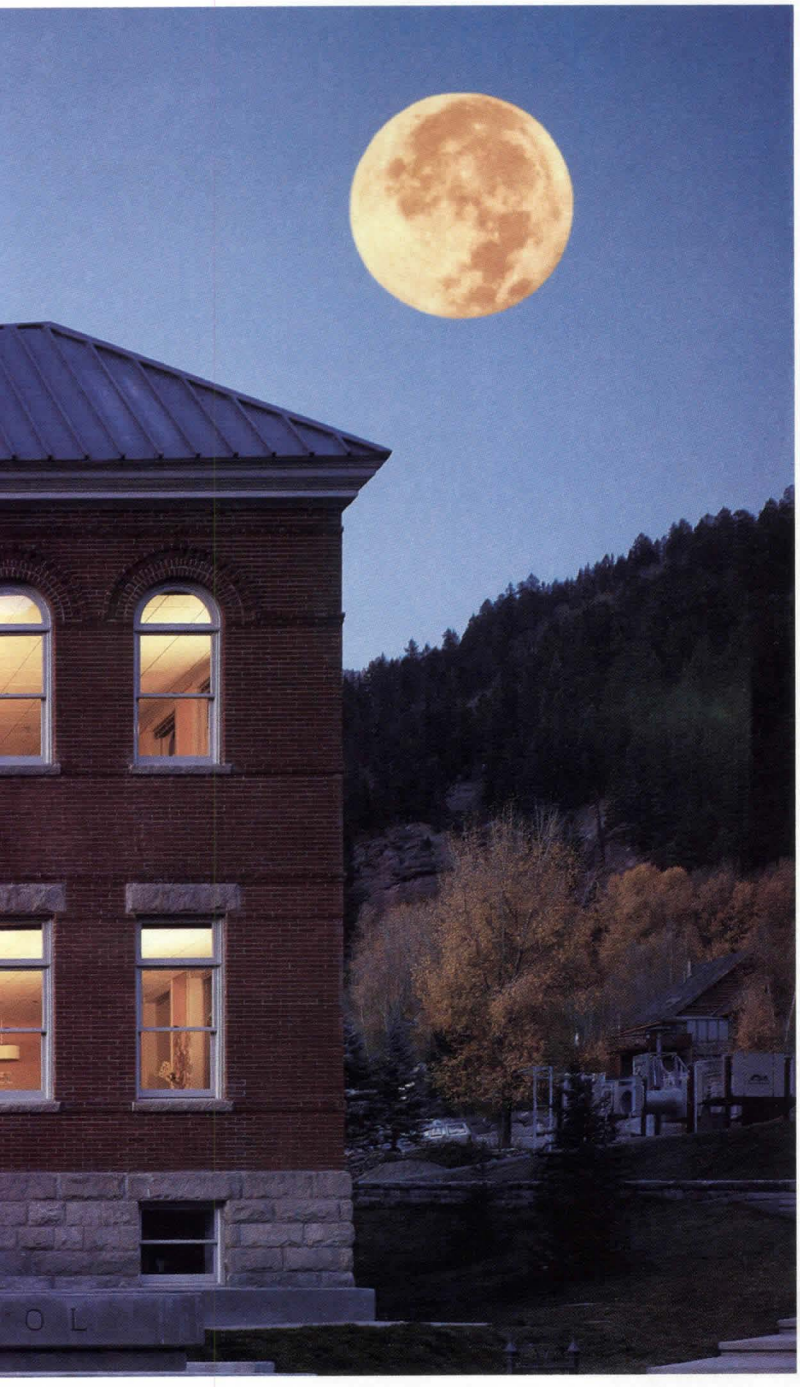
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17

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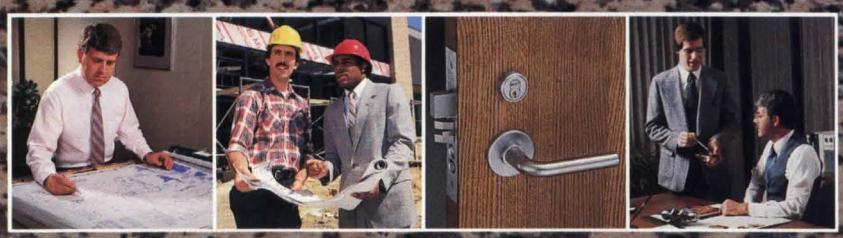
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The entry hall and stair of the Gropius House



Photos: J. David Bohl

The rear of the Gropius House

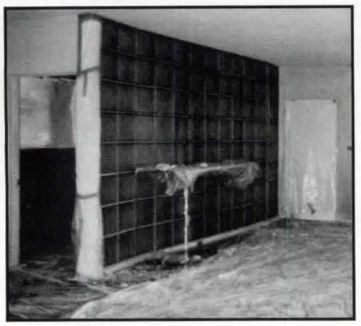
Restoration of the 1938 Gropius House in Lincoln, Mass., gives new dimension to the practice of historic preservation.
A pilot survey of universities discovers trends in architectural research.

Updating Mass-Produced Parts

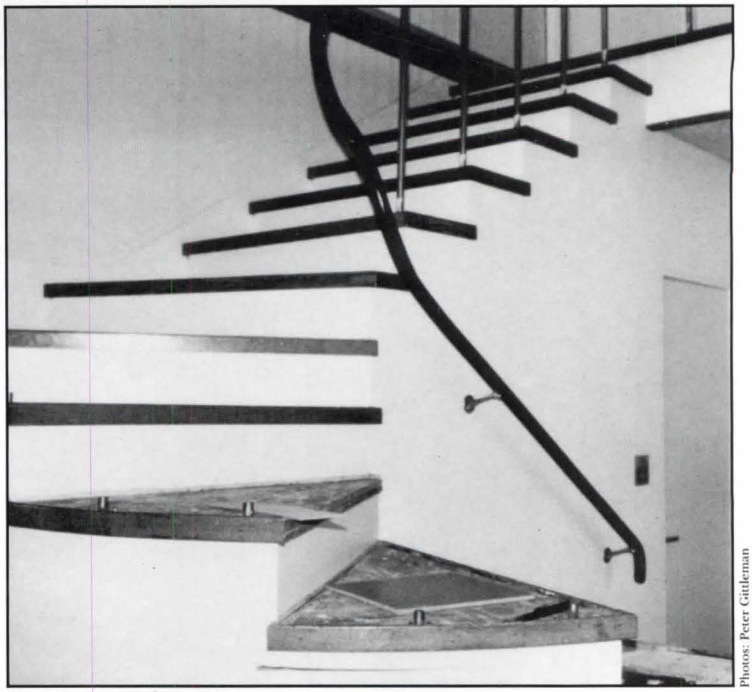
Houses constructed of factory-made parts may be easy to build. But they are not easily preserved, as the restoration of Walter Gropius's landmark International Style house in Lincoln, Massachusetts, shows. Gropius, an early and effective advocate of industrialized housing, used as many off-the-shelf, mass-produced components as he could in his own residence, including steel sash, glass block walls, pipe columns, and cork tile flooring. By using such products, he simplified erection and reduced hand labor. But those same products also created maintenance problems for the Society for the Preservation of New England Antiquities (SPNEA), which was given the house to restore to its state when Gropius last lived there in the late 1960's.

What is significant about this restoration is not just that it has been done, given the importance of the Gropius House, but that it has tackled several problems relatively new to the building conservation field: how to preserve or replace factory-made components, how to let in light without destroying the objects within, and how to keep materials looking like new without using irreversible techniques.

The house's cork floors, for example, were made up of half-inch-thick tiles that Ise Gropius, the architect's wife, had waxed every week to keep looking like new. When SPNEA acquired the house, the cork was badly worn in places, having gone years without being waxed and having had its top surface removed by a rotary sander. "We tried to darken the worn areas by applying stains to them," says Robert Kret of SPNEA, "but the cork became blotchy." While conservators generally try to retain as much of the original building fabric as possible, SPNEA decided that since Gropius would have replaced the worn flooring, they should too. The original flooring company still existed, but it no longer made the tile in



Plaster restoration



Photos: Peter Gittleman

Restoration of stair treads

half-inch-thicknesses. Unable to simply patch in new tile, SPNEA's conservators had to pull up the entire floor, lay down Luan plywood, and then install the new, thinner tile. The difficulties occurred at the stair. The chrome balusters had to be removed to enable the new tile to be installed and the oak trim had to be disassembled and lowered one-eighth inch to accommodate the treads' new thickness. However mass-produced the original flooring, its restoration required the most exacting handicraft.

The cork tile had an approximate substitute on the market; the house's corroded steel sash did not. And custom fabricating a new steel window would have been prohibitively expensive. Fortunately, the owner of Marcel Breuer's former house next door had begun to replace his windows; since they matched those in the Gropius House, SPNEA was able to purchase a contemporary sash and plug it in the wall. "It is a big problem finding appropriate replacements for obsolete materials," says Peter Gittleman of SPNEA. "The best you can hope for is to find people willing to part with matching elements from their own houses."

That can take time. Some of the obsolete, ten-inch-square rippled glass blocks that let light into the house's front vestibule are cracked, mostly at the snow line or at waist height, where shovels or hoes have banged into them over the years. "The cracks have been there a while," says Gittleman, "and there is no apparent deterioration, so we will leave them for now." Which is just as well, *since* SPNEA has yet to locate matching glass block.

Where they may not have the luxury of waiting is the cracked plate glass, with its surface of quarter-inch ripples, next to the front coat rack. "It lets in cold air and presents a potential security problem, so we will have to replace it," says Gittleman, noting that the glass is no longer made and nearly impossible to find.

Not all factory-made products present such difficulties. The original wool carpet in the house had lasted over 30 years. In the early 1970's, Ise Gropius had it covered with a similarly colored nylon carpet, which quickly faded. The wool broadloom, however, was still visible under some pieces of furniture, enabling SPNEA's conservators to reproduce its exact color and cut in a newly milled carpet.

Why are some factory-made products easy to reproduce and others not? The reason has to do in part with how the materials are made: die-cast products such as tile or block are necessarily limited in their variations, while the dyes for coloring carpet fibers have no such constraints. But the differences also relate to the success of various products. Carpet has become ubiquitous, while cork tile flooring and rippled glass block have become relatively rare. The ability to replace a factory-made material cost-effectively thus depends upon how it is produced, which can be predicted, and how it will fare in the marketplace, which cannot. Gropius gave much thought to the factory production and site installation of housing. But the restoration of his own house suggests that the long-term maintenance and preservation of such structures is an equally important and no less difficult problem.

Not every item in his house was made in a factory. For the interior walls and ceilings, Gropius used a spray-applied acoustical plaster. Since the original specifications for the house did not exist and SPNEA's conservators were unsure of the plaster's composition, they took a small sample from behind an outlet and had it chemically analyzed.

Next came the problem of how to clean the plaster. Droplets of oil from the oil-fired furnace had been readily absorbed by the porous material. Further investigation revealed that the plaster had been sprayed directly onto a Masonite board and then troweled smooth, and that what had been viewed as dirt was in part a gray-tinted skim coat. SPNEA's conservators could not use steam cleaning or any other method that would saturate the walls and ceilings with water, for the wet, unkeyed plaster would have fallen off. Nor could they use a highly abrasive method that would rub off the gray skim coat. "What we ended up doing," says Gittleman, "was to use a solution of trisodium phosphate that was dabbed on the plaster with sponges." The method worked, although it was so time consuming that it put the restoration two to three months behind schedule.

The restoration of the furniture raised another set of problems. Gropius would periodically send out some of the metal-framed furniture to be rechromed, an approach to maintenance that runs counter to that of the museum world, which "does not like to do anything that is irreversible or that eliminates all signs of age," says Nancy Curtis of SPNEA. Torn between good conservation practice and the desire of the curators to have the house accurately reflect its owner, SPNEA's conservators took a middle course. "We are in the process of stabilizing the chrome," says Gittleman, "cleaning it and treating it, but not doing anything so drastic as stripping and rechroming it."

Another conflict between conservation and curatorial interests arose with the treatment of the large expanses of glass in the house. Gropius liked to keep the windows uncovered to maximize the view and the amount of daylight in the house. So SPNEA keeps the draperies open when visitors are in the house. But the sun's ultraviolet light also speeds the deterioration of important items in the house such as books and furniture. To minimize the damage, SPNEA has placed an ultraviolet-filtering film on the glass and has begun hanging heavy cloth over the windows when the house is closed. "We probably have some of the most elaborate closing procedures of any house museum," notes Gittleman. "There is a long checklist of things to do, including moving the plants to the windows within the little tents created by the black felt at the windows." SPNEA is now looking into ways of placing a UV film on the glass block, including painting it on.

Few structures of such a recent date have been as carefully preserved as the Gropius House. Yet others are certain to follow, and those responsible for restoring them would do well to pay close attention to what was done here. As it was when first built, the Gropius House restored has once again become a bellwether of things to come.

Thomas Fisher ■


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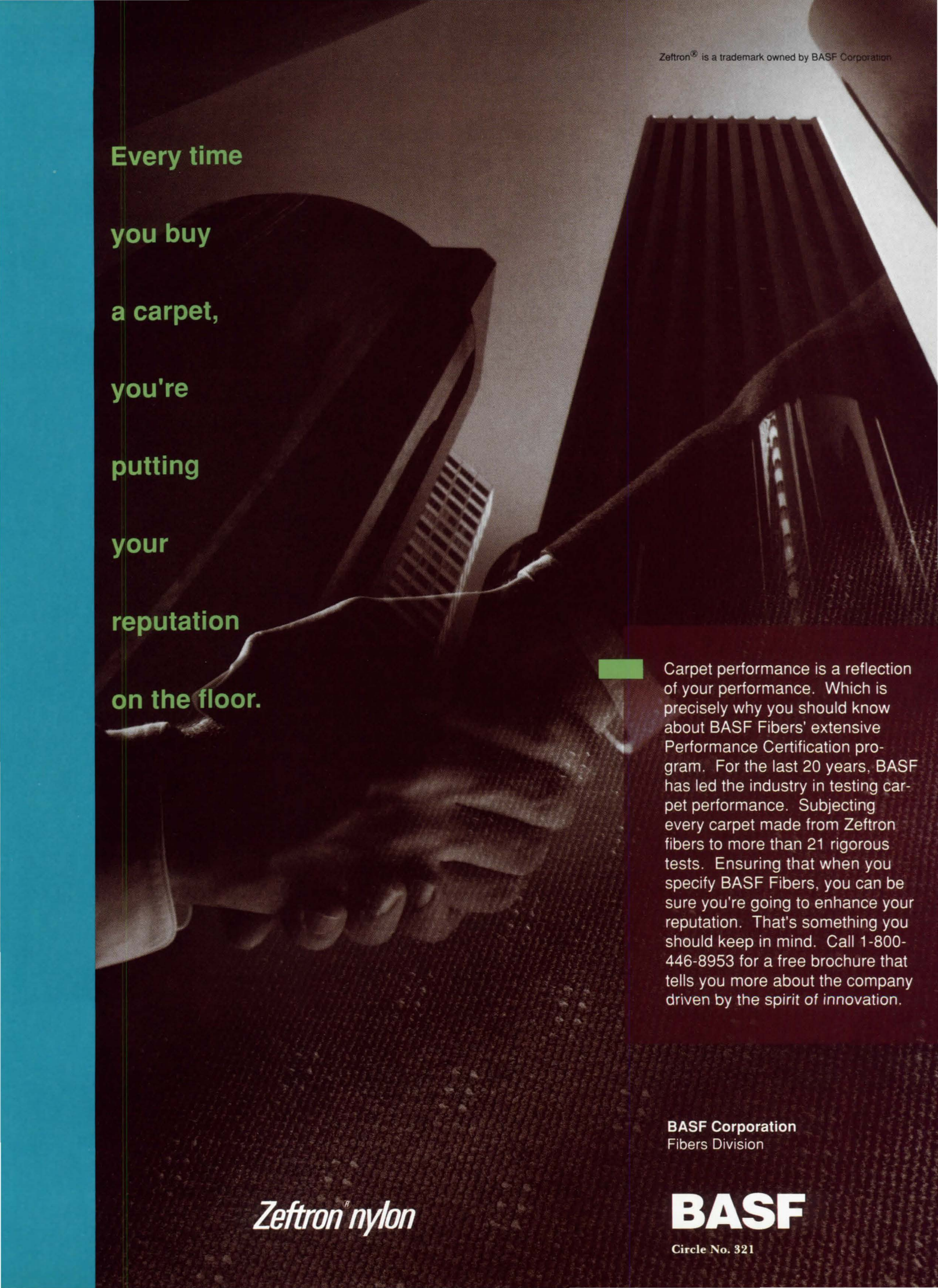
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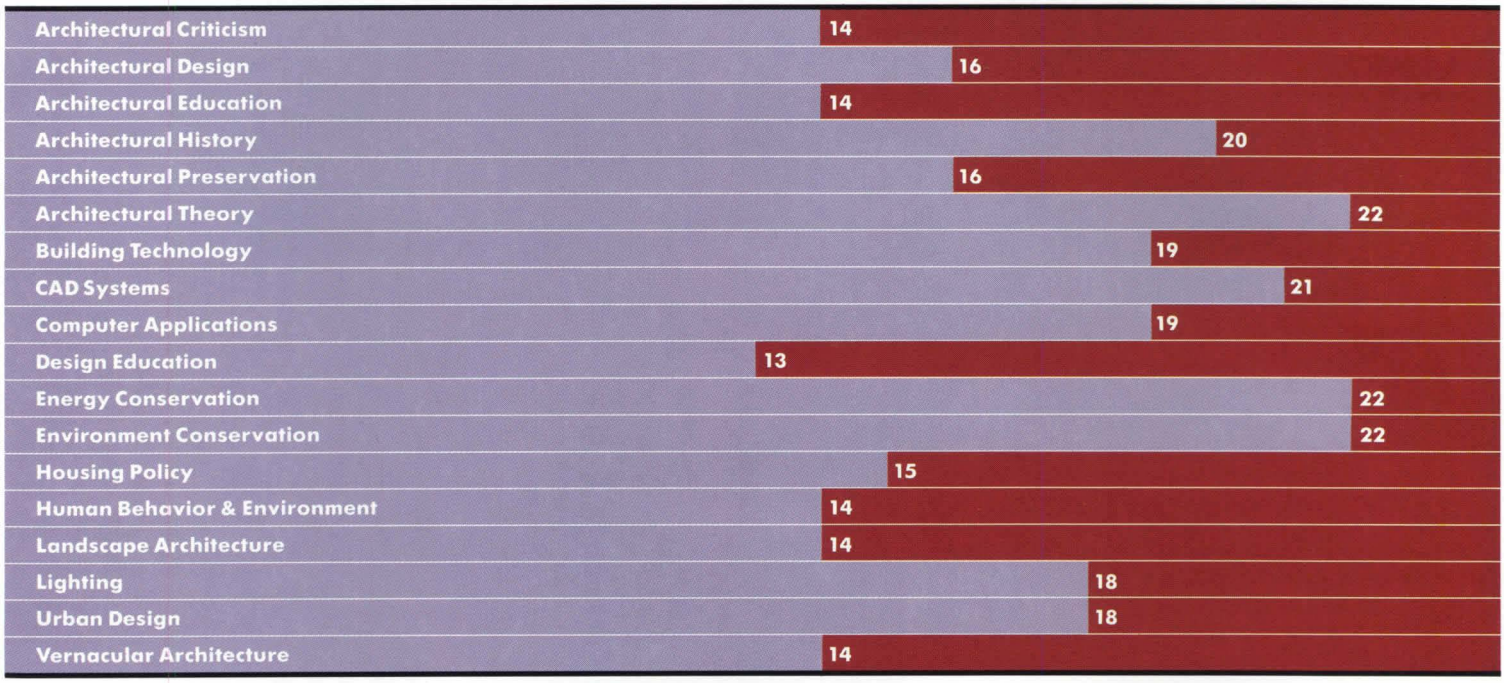
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Most Frequently Researched Topics



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Schools Listing the Most Research Topics	
Texas A&M University	49
University of Michigan	44
Ball State University	42
Washington State University	35
University of Colorado at Denver	28
Washington University	28
University of Queensland (Australia)	26
University of Nebraska at Lincoln	26
Ohio State University	25
University of Minnesota	25

Poll Ranks Research Topics

In the world of university-based architectural research, what's hot and what's not?

According to a recently completed pilot survey, architectural theory tops the list of most frequently researched topics, followed by studies of energy and environmental conservation. Research of CAD systems, architectural history, and computer applications round out the list of popular topics. Least studied subjects include performance failures, radon hazard mitigation, and the design process.

The pilot survey of universities and schools of architecture was conducted by Wolfgang Preiser, director of research and development at the University of New Mexico's School of Architecture and Planning, and assistant George Burbano. Co-sponsors were the AIA/ACSA (Association of Collegiate Schools of Architecture) Council on Architectural Research.

Every accredited school of architecture and planning in the U.S. and a limited number of foreign schools—120 in all—received copies of the survey. The results exceeded the expectations of Preiser in terms of the breadth of research at many schools. Texas A&M University and the University of Michigan reported the greatest research activity, with 49 and 44 topics respectively. Interestingly, CAD and general computer applications combined were cited by more than 80% of the responding schools. The survey also took note of such important, but infrequent research topics as housing the disabled, performance failures, and radon hazards.

The pilot showed that energy research, though a frequent topic, was down in popularity from its high point in the 1970s. Also, very little research is being done on the design and building delivery process—the University of Minnesota is the only school listing it—yet, 15 years ago this was a topic of very high interest. The study of lighting technology is increasing, possibly reflecting the current debate over daylighting versus artificial lighting in museum and office settings. Most important, according to Preiser, was the big showing for the subject of health, safety, and security in buildings, reflecting perhaps the heightened concern among architects and building owners over liability.

While the results are of interest for the trends they suggest, the survey is incomplete, with less than 40% of the schools who were surveyed submitting responses. Not well represented, for example, are schools affiliated with the Architectural Research Centers Consortium. Of the 35 ARCC schools polled, only 14 responded. Other weaknesses involved the reporting process. Not all surveys were completed by a research center director, as was requested. Individual faculty members who answered some surveys may not have been aware of all the research being conducted at their school.

By publicizing the research going on here and around the world, Preiser hopes to identify new and emerging topics in research. The survey will call attention to unusual efforts and identify the sources of this work for researchers who are interested in establishing networks. He also sees the survey as a means of organizing publications, patents and other products of research so that they can be of use to the architectural community.

A follow-up survey, also sponsored by the AIA/ACSA Council on Architectural Research, will be sent out in August, with the results expected by early 1990. This second survey will be more detailed than the first, and will attempt to measure the quality of the research, to determine which schools are spending the most money, and to find out how many faculty members are involved in each study. Preiser hopes to conduct this survey every two years. ***Debra Ladestro*** ■

A summary chart of the pilot survey results is available by writing Dr. Wolfgang Preiser, Center for Research and Development, School of Architecture, University of New Mexico, 2414 Central Avenue S.E., Albuquerque, NM 87131.

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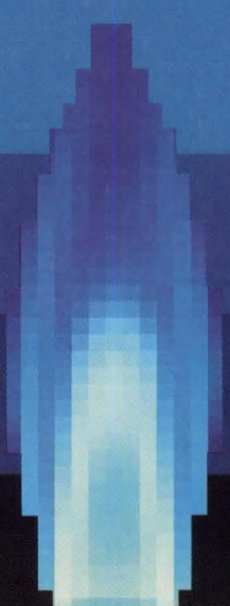
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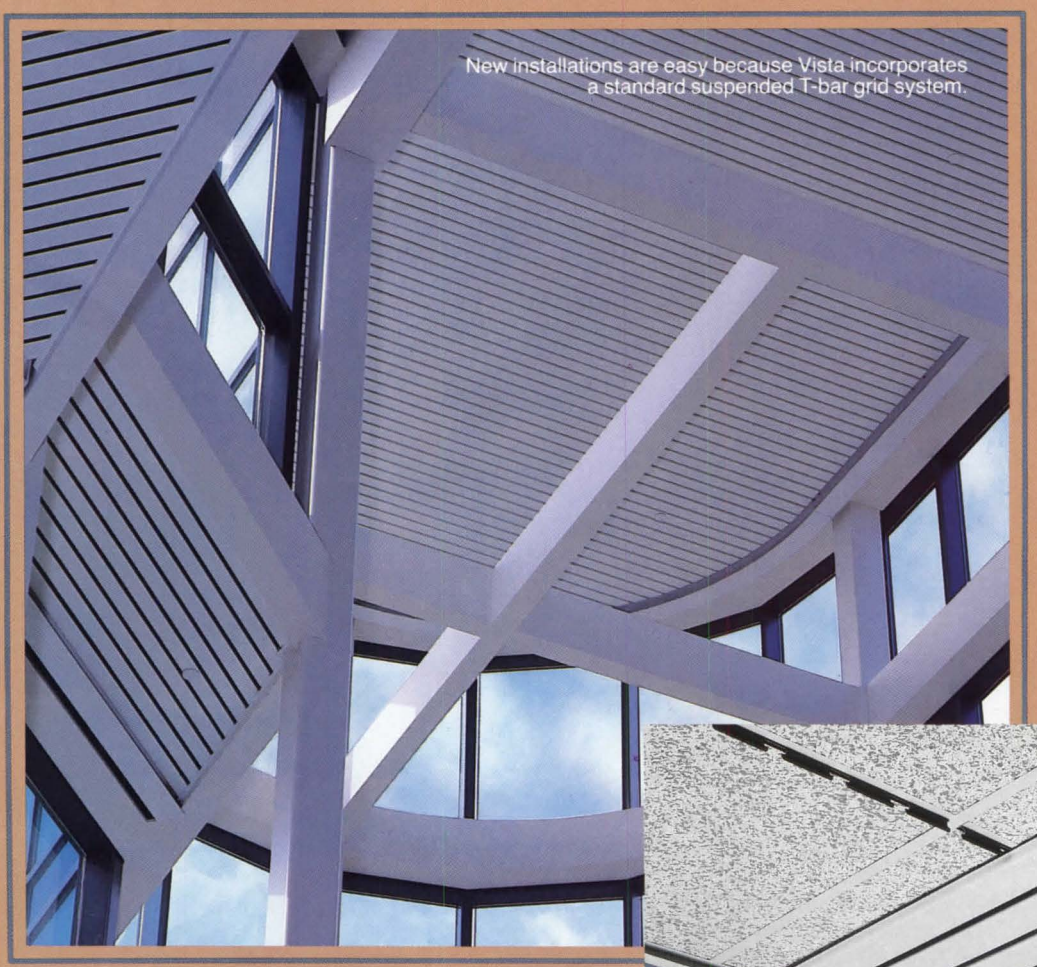
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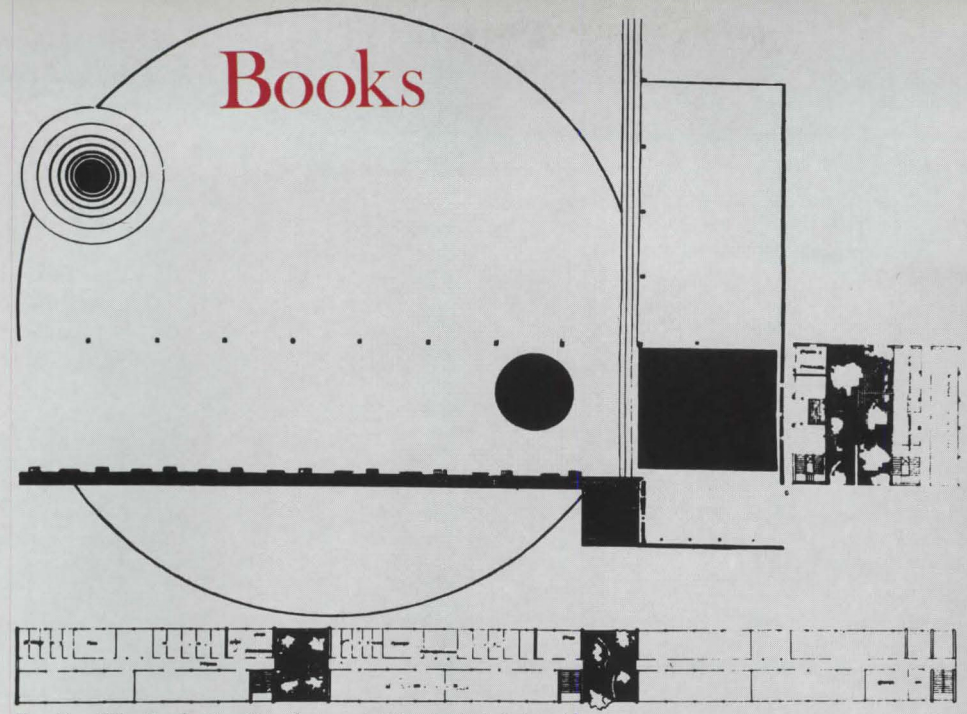
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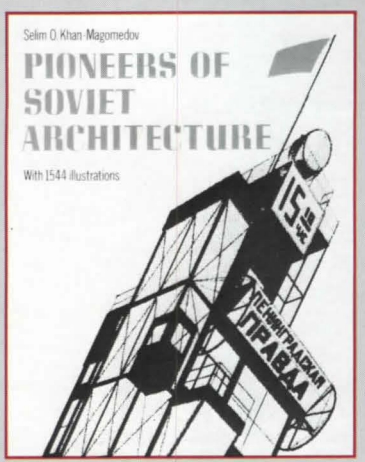
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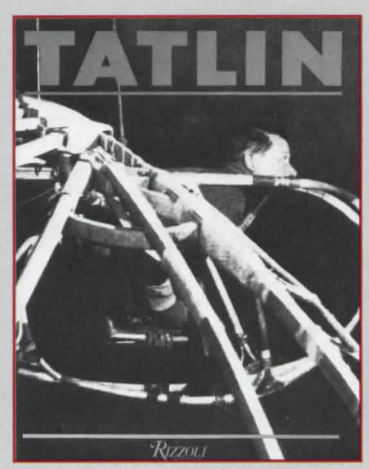
Books

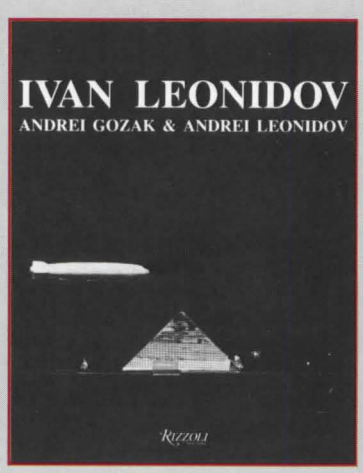


Sov-kino Film Production Complex, competition project, I. Leonidov.

Pioneers of Soviet Architecture, *by Selim O. Khan-Magomedov. New York, Rizzoli, 1989. 681 pp., illus., $75.*
Tatlin, *edited by Larissa Alekseevna Zhadova. New York, Rizzoli, 1989. 533 pp., illus., $75.*
Ivan Leonidov, *compiled by Andrei Gozak with Andrei Leonidov. New York, Rizzoli, 1988. 216 pp., illus., $60.*







Soviet Pioneers

The recent rediscovery of Russian avant garde architecture of the 1920s and 1930s has opened the door to a new source of ideas and spatial explorations that are both useful and inspiring for architects and educators of today. In this book Khan-Magomedov presents a detailed picture of the birth and evolution of the different disciplines that comprised the artistic experiments of this period. The author has documented and illustrated an array of architectonic examples, giving a cohesive picture of these revolutionary years.

The book is divided into three parts. The first studies how poets, painters, and architects were striving simultaneously to achieve a new vocabulary that would identify the socio-political Soviet Revolution. The work of individual architects is thus viewed within a framework of artistic and social ideologies. The second section deals with specific architectural problems such as town planning, housing, and new types of public buildings, which were the direct con-

(continued on page 122)

Tatlin, Leonidov

As students from Columbia University travel to Moscow or their Soviet counterparts head for Sci-Arc in Los Angeles, the scarcity of English language resources on Russian architecture is increasingly evident. Three new volumes published by Rizzoli International make a big dent in the Wall. Two—*Tatlin* and *Ivan Leonidov*—are dedicated to the work of individuals; a third, *Pioneers of Soviet Architecture* (see separate review, this page), considers their milieu.

As such scholarly productions go, *Tatlin* is as exceptional as it is comprehensive. The volume was produced by a group of Soviet scholars who divided Tatlin's activities among themselves—one writing on painting, another on drawings, another on theater designs. The result, as they readily admit, is repetitious but comprehensive. These studies are supported by nearly 300 pages of documents, many published for the first time here. These include Tatlin's own writings and—in many ways more revealing for Westerners—writings about Tatlin by his contemporaries and later historians. Drawings, paintings, pottery, chairs, and of course architectural designs, fill out this definitive work on a seminal figure.

Although only half the size, *Ivan Leonidov: The Complete Works* is equally definitive. A virtual *oeuvre complete*, this volume was compiled by Moscow architect and critic Andrei Gozak with the architect's only son Andrei Leonidov. (It was edited by British critic Catherine Cooke.) Complete it is, right down to expenses for eggs, tomatoes, and caviar recorded in a 1929 sketchbook.

These two volumes, together with *Pioneers of Soviet Architecture*, provide the crucial *catalogues raisonnes* for future research. As contacts increase between Soviet and Western architects and academics, the books supply crucial background material. Finally, they are a treasure trove of fresh and familiar images from a period that remains a perennial inspiration for contemporary architects.

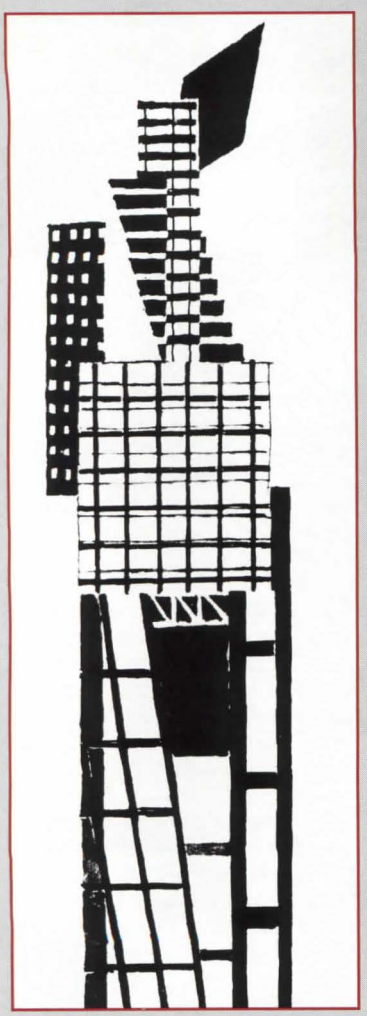
Daralice D. Boles ■

Santiago Calatrava: Engineering Architecture *edited by Werner Blaser with contributions by Kenneth Frampton and Pierluigi Nicolin. Boston, Birkhauser Verlag, 1989. 176 pp., illus., $50.50.*
The text concentrates on Calatrava's unique place at the juncture of architecture and engineering. Included in the many illustrations are conceptual sketches, construction diagrams, and striking photographs.

California Architecture: Historic American Buildings Survey *by Sally Woodbridge. San Francisco, Chronicle Books, 1988. 274 pp., illus., $35 hardcover, $19.95 paperback.*
The author chronicles California's architectural heritage spanning almost 200 years from Franciscan missions to 1920s houses. The accompanying HABS catalog documents many additional Californian buildings.

English Neo-Classical Architecture *by Damie Stillman. London, A. Zwemmer, dist. Harper & Row, 1988. 2 vol., 248 pp., illus., $295.*
The scholarly precision and beautiful production of these volumes illuminates British architecture in the second half of the 18th Century. A multitude of period illustrations and photographs as well as an extensive bibliography supplement the text.

The Skyward Trend of Thought: The Metaphysics of the American Skyscraper *by Thomas A.P. Van Leeuwen. Cambridge, MIT, 1988. 176 pp., illus., $25.*
In four long essays, this Dutch professor explores not only the documented history of the skyscraper but also its unique place in the mythology of American architecture.



Skyscraper project, V.F. Krinsky.

(continued from page 121)

sequence of social change. The third part contains biographical data for the major architects and documents the new movements and organizations.

As traced in this study, the political, social, and cultural implications of the revolution encouraged avant garde artists to define a new role for art and architecture aimed not merely to decorate but to shape society. Fundamental questions of design and aesthetics were reconsidered, and a new methodological approach to design was fostered. Because of the economic difficulties of this period, however, most architectural projects were confined to competitions and theoretical exercises.

Khan-Magomedov distinguishes two major trends in architecture: the Rationalists and the Constructivists. For the Rationalists, led by Nikolai A. Ladovsky and Vladimir Krinsky, space was the most important generator of form. The movement's strength was primarily academic, and its major contribution was the creation of the "Vkhutemas," a new type of school that challenged traditional principles of composition and explored pure shape and volume. Issues of symmetry, gravity, mass, and light provided the main parameters for their designs, which through their agitated vitality created a new dynamic order expressive of social change.

The Constructivists' work is generally better known in the West. The author clarifies the original social overtones which set this movement apart from pure formalism. For the Constructivists, technology, rather than space, was the primary form generator. From their doctrine, as developed by such leaders as Alexander Vesnin and Moisei Ginzburg, a strong style emerged in which technology was expressed through the contrast of pure volume and structural frame.

The debate between these two factions was abandoned with the first Five-Year Plan in 1928, when a surge of construction fostered joint action. Except for such individuals as Konstantin S. Melnikov and Ivan I. Leonidov, the second generation pursued a more eclectic course until finally, by the end of the 1930s, a reorientation to traditionalism took place.

The second part of the book deals with specific architectural problems in chronological order. The reconstruction of life style through the built environment was an intense and optimistic enterprise of the Revolution, evident not only in comprehensive town planning that was introduced for the first time but in new housing types, schools, scientific establishments, and recreational facilities that tried not only to represent the new ideology but also to incorporate new technology and materials. These experiments were aimed at nothing less than establishing the world's first socialist architects.

Pioneers presents a thorough and objective account of these developments. Its chief contribution to scholarship lies in the author's complete, factual approach which represents an impartial understanding of this turbulent period. The author avoids any poetic or philosophic interpretations. Groups of black and white illustrations following each chapter make possible a good visual understanding of the work. Within the recent plethora of literature on this subject, this book stands out as an encyclopedic reference, whose thorough documentation of an intricate subject prepares the ground for further and deeper analysis.

Annabel Delgado ■

The author is an architect working in Miami with Architectural Design Consultants.

What do this Japanese restaurant, furniture store, and office building have in common?

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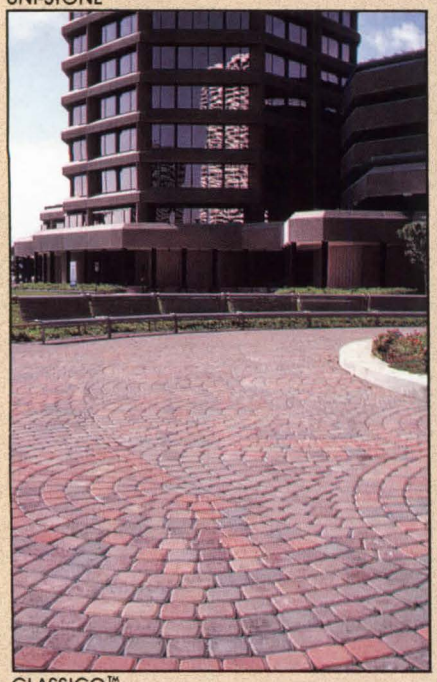
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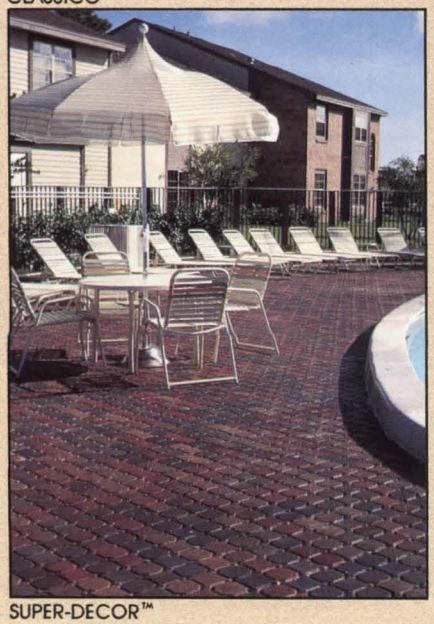
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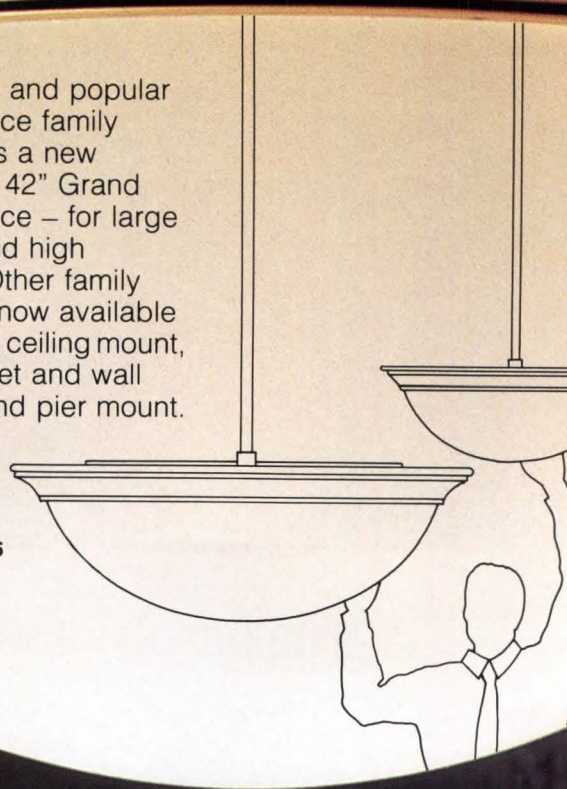
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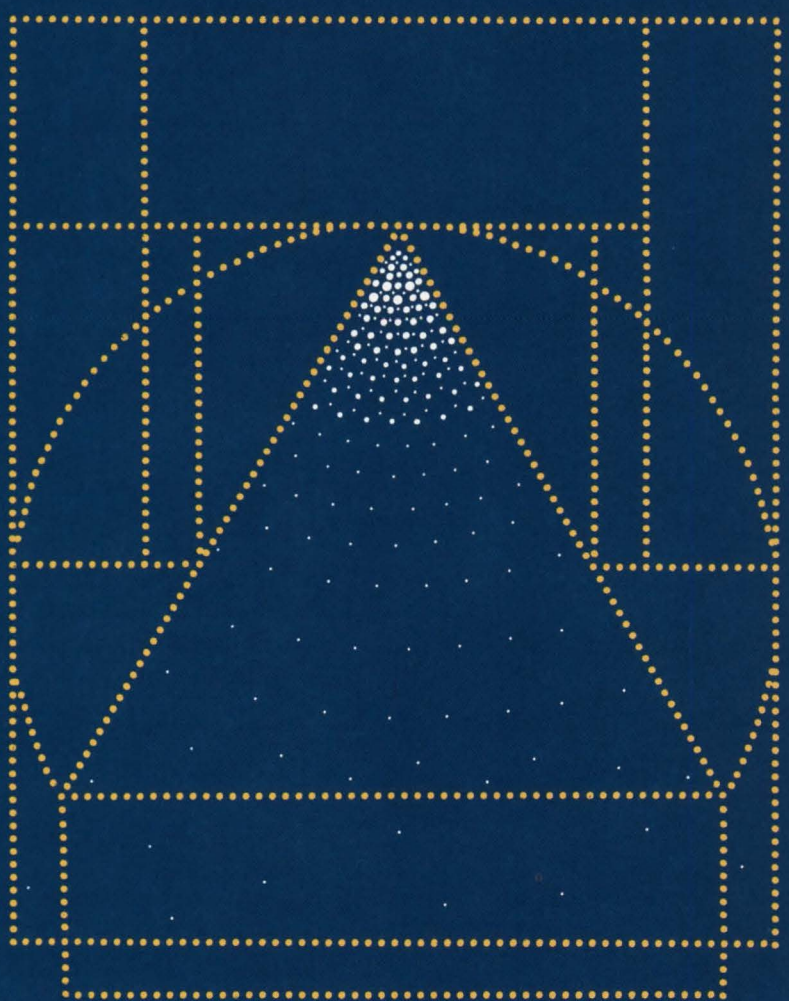


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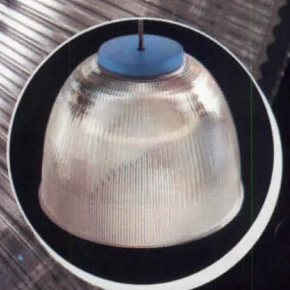
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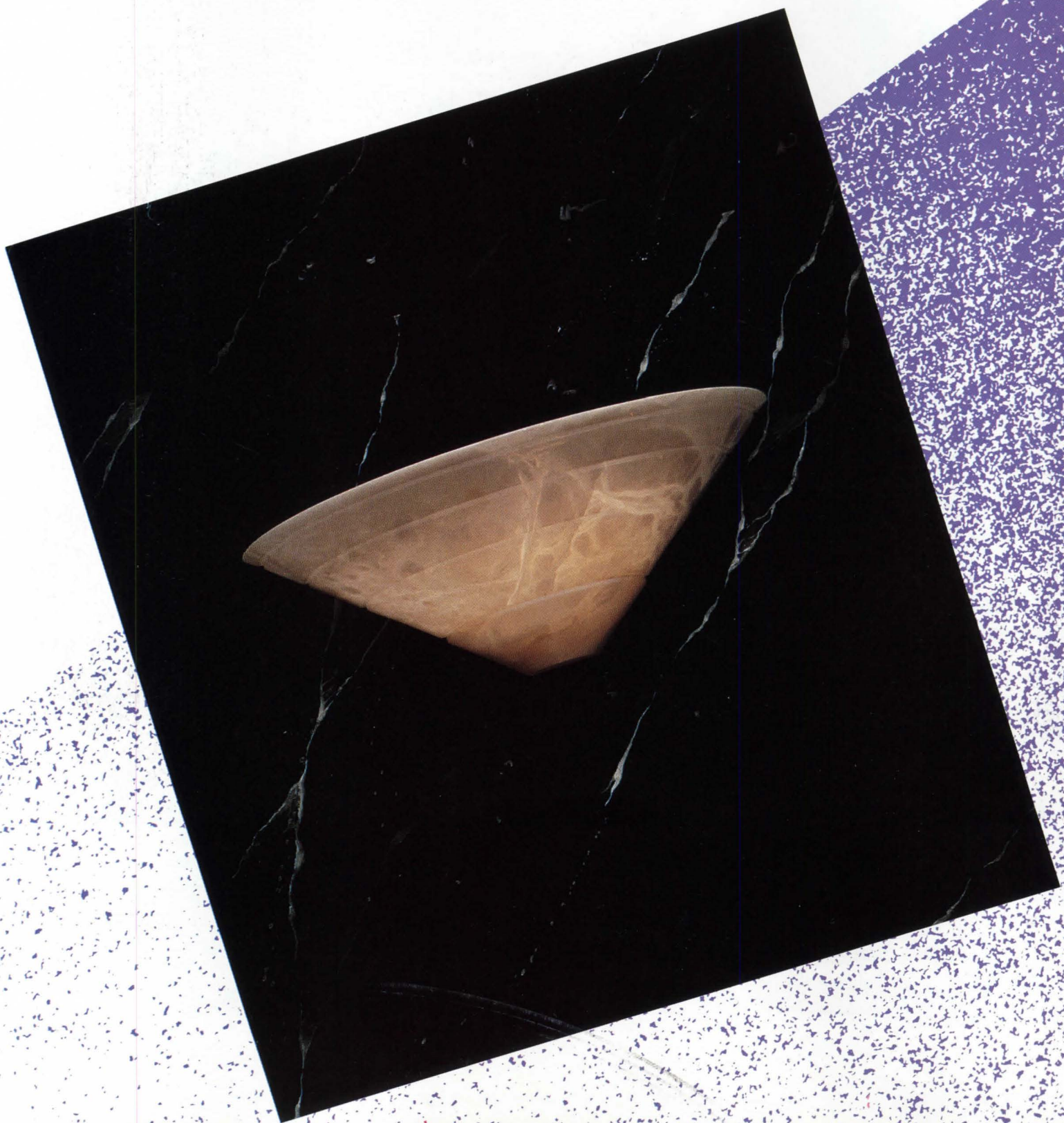
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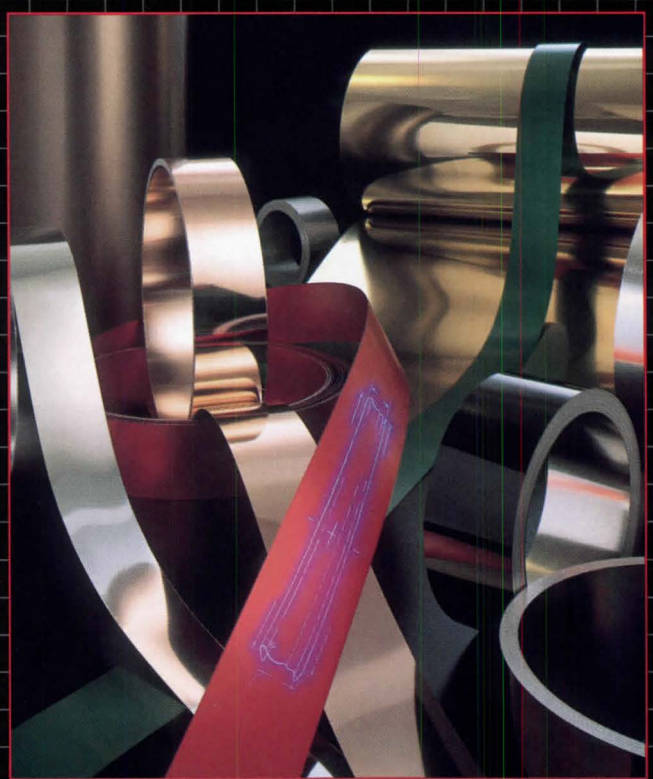
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Schedule-at-a-Glance

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Wednesday, May 10

9:00–10:30
Opening Breakfast
Keynote speaker: Charles Gwathmey, FAIA

10:30–7:00
Exhibit Hall Opens

11:00–12:00
Using Color As Light
Speaker: Peter Barna, President, Light & Space Associates, Ltd.

1:00–2:30
Preview of Products: The Latest Thing in Lighting.

3:00–4:00
Lighting the Contemporary Workplace
Speaker: Kenneth Loach, Lighting Specialist/Consultant, H.H. Angus & Associates, Ltd.

7:30–10:30
An Evening at South Street Seaport

Thursday, May 11

9:00–10:00
Cost Effective Lighting: A Guide for Owners and Designers
Speakers: Helen Diemer, Director for Lighting Services, Flack + Kurtz Consulting Engineers

10:00-7:00
Exhibit Hall Opens

10:15–11:15
Assessing Luminaire Quality
Speaker: D.W. Schweppe, Jr., Schweppe Lighting Design, Inc.

11:30–1:00
From Specification to Construction: A Panel Discussion of the Players and the Process
Speakers: James Beyer, The Stubbins Associates: Gersil Newmark Kay, Morris Newmark & Brothers, Inc.; Stephen Lees, Horton-Lees Lighting Design, Inc.; Mary Tatum, Lightolier; Larry Vail, Summers Electric Co.; Charles Linn, Moderator, Architectural Lighting

2:00–5:00
Workshops: Putting Together a Lighting Design
Presenters: Designers Lighting Forum of New York

2:30–3:30
Lighting: A Business Opportunity for Electrical Contractors
Speaker: William T. Hirons, Guild Electric, Ltd.

3:35–4:45
Computer Lighting Analysis and Simulation for Lighting Designers and Engineers
Speaker: David Lord, Ph.D., Professor of Architecture, California Polytechnic State University, San Luis Obispo.

Friday, May 12

10:00–5:00
Exhibition Hall Opens

9:00–10:00
Basic Lighting Controls: A Guide for Architects and Interior Designers
Speaker: Stephen Margulies, Lighting Design Director, Cosentini Associates.

9:00–12:00/1:30–3:30
Workshop: Project Management
Presenters: American Society of Interior Designers

10:15–11:15
Lighting for Historic Preservation Projects
Speakers: Paul Marantz, Principal, Jules Fisher & Paul Marantz, Inc.; Malcolm Holzman, Partner Hardy Holzman Pfeiffer Associates

1:00–2:00
Using Theatrical Techniques in Architectural Lighting
Speaker: Mark Kruger, Kruger & Associates

2:15–3:15
Retail Lighting as an Aid to Sales
Speaker: Stefan Graf, Illuminart

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This year we return to New York with a show of truly international proportions. On the exhibit floor you will see all of the lighting products that you need to know about: the latest energy-efficient sources, the most sophisticated control systems, new fixture designs, and that unique product for that special application.

Our seminar program is presented by the foremost experts in the lighting community. If lighting issues are part of your professional life, you will find seminars that enrich your theoretical and practical knowledge. You can survey new product introductions at "Preview of Products," and go on to the exhibit floor for details.

You can participate when an architect, lighting designer, distributor, manufacturer's representative, and contractor examine the process of taking a lighting design from concept through installation. You can undertake a lighting design and benefit from the comments of three professional lighting designers.

LIGHTING WORLD INTERNATIONAL—the international lighting exposition and conference—exemplifies innovation. Come and be dazzled.

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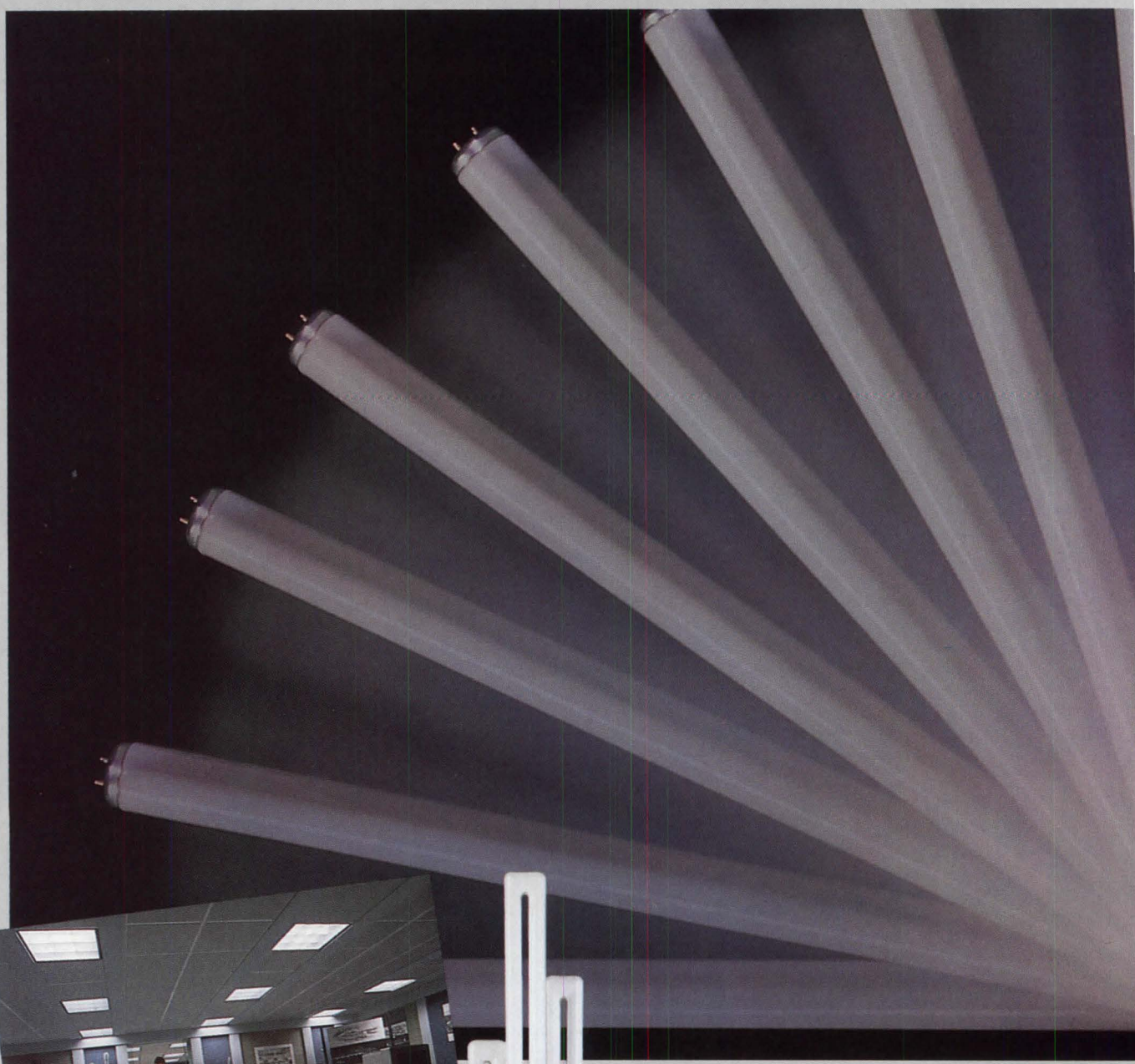
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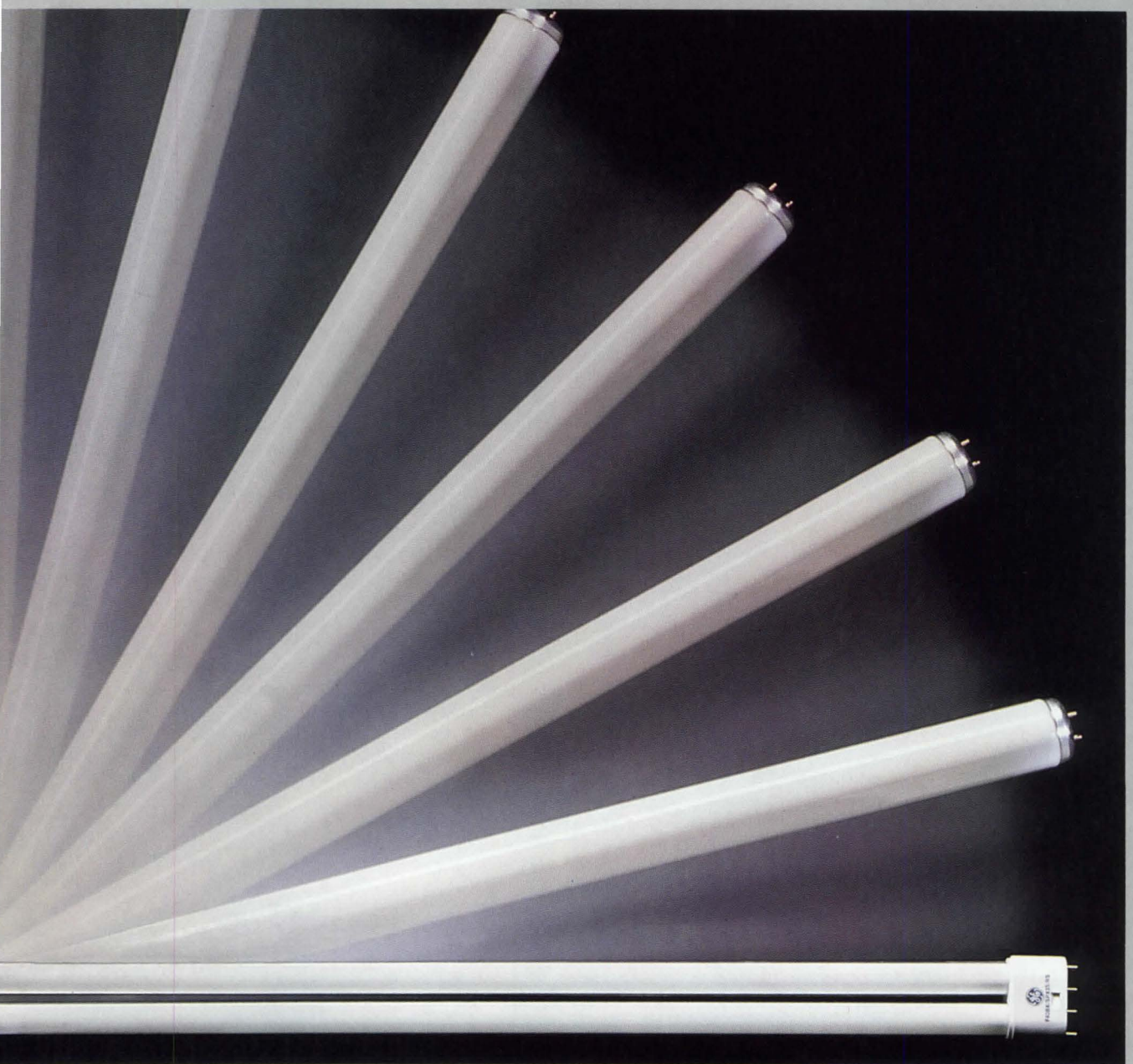


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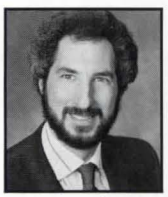
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Schedule of Events


Charles Gwathmey


Mitchell Kohn


Andre Tammes

Wednesday, May 10

Opening Breakfast
9:00 a.m.–10:30 a.m.
Keynote Speaker: Charles Gwathmey, FAIA, Partner, Gwathmey Siegel & Associates, New York
It has become a tradition for designers, members of the lighting community, and the press to come together at Lighting World International on each new show's first day to hear a noted designer discuss what light and lighting means in his or her work.

Charles Gwathmey says, "Light and space have been eternally inseparable in architecture. Lighting, with light and space, is the necessary enrichment that allows for controlled variation and complimentary articulation. The more sophisticated and the more integrated the mutually supportive disciplines become, the closer essential harmony is realized."


Peter Barna

Using Color as Light
11:00 a.m.–12:00 p.m.
Speaker: Peter Barna, President, Light & Space Associates, Ltd., New York.
Designers who learn to see colors and finishes as light will have a vocabulary to guide them in selecting light source color, lighting quality, and fixtures. In this session, a variety of projects drawn from fine arts, architecture, and interior design will illustrate the selection process and the results that can be achieved.

Preview of Products: The Latest in Lighting
1:00 p.m.–2:30 p.m.
Presenters: Mitchell Kohn, Architectural Lighting Consultant, Chicago; Andre Tammes, Lighting Design Partnership, London.
Exhibitors will present their latest fixtures, sources, and controls. Prequalified by a panel of experts from the IALD and the IES, all products will be available at exhibitors' booths for demonstration after the session.


Kenneth Loach

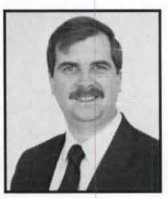
Lighting the Contemporary Workplace
3:00 p.m.–4:00 p.m.
Speaker: Kenneth G. Loach, Lighting Consultant/Specialist, H.H. Angus & Assoc., Toronto.
This session will discuss the design of lighting for the contemporary workplace, focusing primarily on areas where the glare and reflection from visual display terminals (VDT) may affect worker performance. Topics will include task ambient lighting, total indirect lighting, direct/localized general lighting, current and proposed legislation, furniture placement for VDT areas, and energy conservation and control systems.

An Evening at South Street Seaport
7:30 p.m.–10:30 p.m.
The South Street Seaport, located near Wall Street in lower Manhattan, is an historic district of restored 19th Century buildings which offers over 100 shops, a maritime museum, and a variety of street performers. Relax with your industry associates at the Seaport's Ocean Reef Grille where we have arranged a buffet dinner, open bar, and dancing. Buses will begin leaving the Convention Center at 6:30 (last bus at 7:15) to allow you time to explore this shopping district. Please register in advance to guarantee reservations.

Thursday, May 11


Helen Diemer

Cost-Effective Lighting: A Guide for Owners and Designers
9:00 a.m.–10:00 a.m.
Speaker: Helen Diemer, Director of Lighting Services, Flack + Kurtz Consulting Engineers, New York.
By accommodating the needs of the end user, an owner can use appropriate lighting as a selling point to increase a building's marketability and to lower operating costs. This session will discuss the factors that owners and designers should consider when planning a lighting system. Flexibility, light quantity, sources, fixtures, ballasts, controls, lamp life, and maintenance schedules and procedures will be included.


D.W. Schweppe

Assessing Luminaire Quality
10:15 a.m.–11:15 a.m.
Speaker: Denison W. Schweppe, Jr., Schweppe Lighting Design, Inc., Acton, Mass.
Architects and interior designers need to know how to evaluate luminaire quality and performance independently of manufacturers' and contractors' claims. This session will provide the basic tools for assessing both the general and relative quality of a given luminaire: The relationship between cost and quality, how to use photometrics for comparisons, and how to assess alternate luminaires. Materials, details and craftsmanship, and UL ratings will be discussed.

From Specification to Construction: A Panel Discussion on the Players and the Process
11:30 a.m.–1:00 p.m.
Panel: James Beyer, The Stubbins Assoc., Cambridge, Mass; Gersil Newmark Kay, Morris Newmark & Bros., Philadelphia; Stephen Lees, Horton Lees Lighting Design, New York; Mary Tatum, Lightolier, Washington, D.C.; Larry Vail, Summers Electric Co., Farmers Branch, Texas.
Moderator: Charles Linn, Architectural Lighting, Eugene, Oreg.
For any architect, interior designer, lighting designer, consulting engineer, distributor, manufacturer's representative, or contractor who has ever been a player in the process that takes lighting design from concept to reality, this session will present many opinions on why things sometimes work and sometimes don't work, how they could work better, and what the factors and priorities are that guide each player.


Raymond Grenald

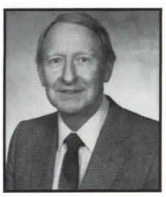

Chris H. Ripman


Lesley Wheel


Charles E. Pavarini

Putting Together a Lighting Design: A Workshop Presented by the Designers Lighting Forum of New York
2:00 p.m.–5:00 p.m.
Panel: Raymond Grenald, FAIA, Senior Partner, Grenald Assoc., Los Angeles; Christopher Hugh Ripman, President, Ripman Lighting Consultants, Belmont, Mass.; Lesley Wheel,

Wheel Gersztoff Friedman Shankar Assoc., Los Angeles. Interior Designer: Charles E. Pavarini, III, Design Partner, Pavarini Cole Interiors, New York.
Moderator: Connie Jensen, Principal, Lighting Professionals, Montvale, N.J.
Participants will work with three leading lighting consultants to put together lighting designs for a multi-use conference room, a marble skylighted bath, and a soaring residential interior. Mr. Pavarini will profile each project before participants attempt preliminary lighting designs. Panelists will present their solutions and the reasoning behind them. Additional lighting tips, data, and the completed solutions will be presented in a take-home booklet.


William T. Hirons

Lighting: A Business Opportunity for Electrical Contractors
2:30 p.m.–3:30 p.m.
Speaker: William T. Hirons, Lighting Specialist, Guild Electric Limited, Toronto.
This session, presented by an electrical contractor for his peers, will discuss why lighting should be considered more than just another item in the electrical bid package. The speaker will suggest what contractors should know about lighting and how to go about developing a special niche in this contracting specialty.


David Lord

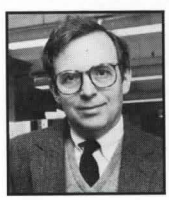
Computer Lighting Analysis and Simulation: A Survey for Lighting Designers and Engineers
3:45 p.m.–4:45 p.m.
Speaker: David Lord, Ph.D., Professor of Architecture, California Polytechnic State University, San Luis Obispo, California
Microcomputers allow lighting designers to compare alternative solutions and visualize them on video screens rather than in conventional cardboard models. This session will help designers sort through software applications, beginning with a survey of major manual calculation techniques. Hand-held lighting calculators and the recent history of computer applications in lighting calculations will also be reviewed. Dr. Lord will discuss point-by-point microcomputer programs for outdoor and indoor applications, and lumen-method microcomputer programs, illustrating the output that can be obtained on video monitors.

Friday, May 12

Project Management: A Workshop Presented by the American Society of Interior Designers
9:00 a.m.–12:00 Noon continued at 1:30 p.m.–3:30 p.m.
Speaker: David A. Rinderer, Vice President, Practice Management Assoc., Newton, Mass.
In an intensive five-hour workshop participants will learn about the project manager's role in marketing and profit making, how to plan for multiple priorities, how to bring a project in on time and on budget, how to prepare a project plan, and what technical responsibilities a project manager should assume. A handout of outlines and basic forms will be provided. Completion of the workshop will entitle attendees to .6 CEUs from the ASID.

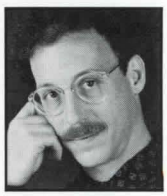

Stephen Margulies

Basic Lighting Controls: A Guide for Architects and Interior Designers
9:00 a.m.–10:00 a.m.
Speaker: Stephen Margulies, Lighting Design Director, Cosentini Assoc., New York.
While architects and interior designers will rarely design a lighting control system themselves, a knowledge of the basic concepts and components will improve communication with the lighting consultant and engineer and lead to a fully-realized design. This session will discuss lighting control options—from the simple wall switch to sophisticated electronic systems—including the role of controls in energy management and maintenance operations, and the economics of control systems. Technologies such as daylight balancing, occupancy sensors, automated time controls, and local dimming and switching will also be discussed.

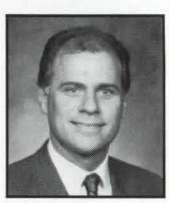

Paul Marantz


Malcolm Holzman

Lighting for Historic Preservation Projects
10:15 a.m.–11:15 a.m.
Speakers: Malcolm Holzman, Partner, Hardy Holzman Pfeiffer Assoc., New York; Paul Marantz, Principal, Jules Fisher & Paul Marantz, Inc., New York.
When renovating an historically significant project, lighting designers must decide whether to light for historical accuracy or for modern eyes. An architect and a lighting designer will use examples from their work to explore the varying philosophies of lighting historic buildings, how they arrive at their solutions, and what they consider along the way.


Mark Kruger

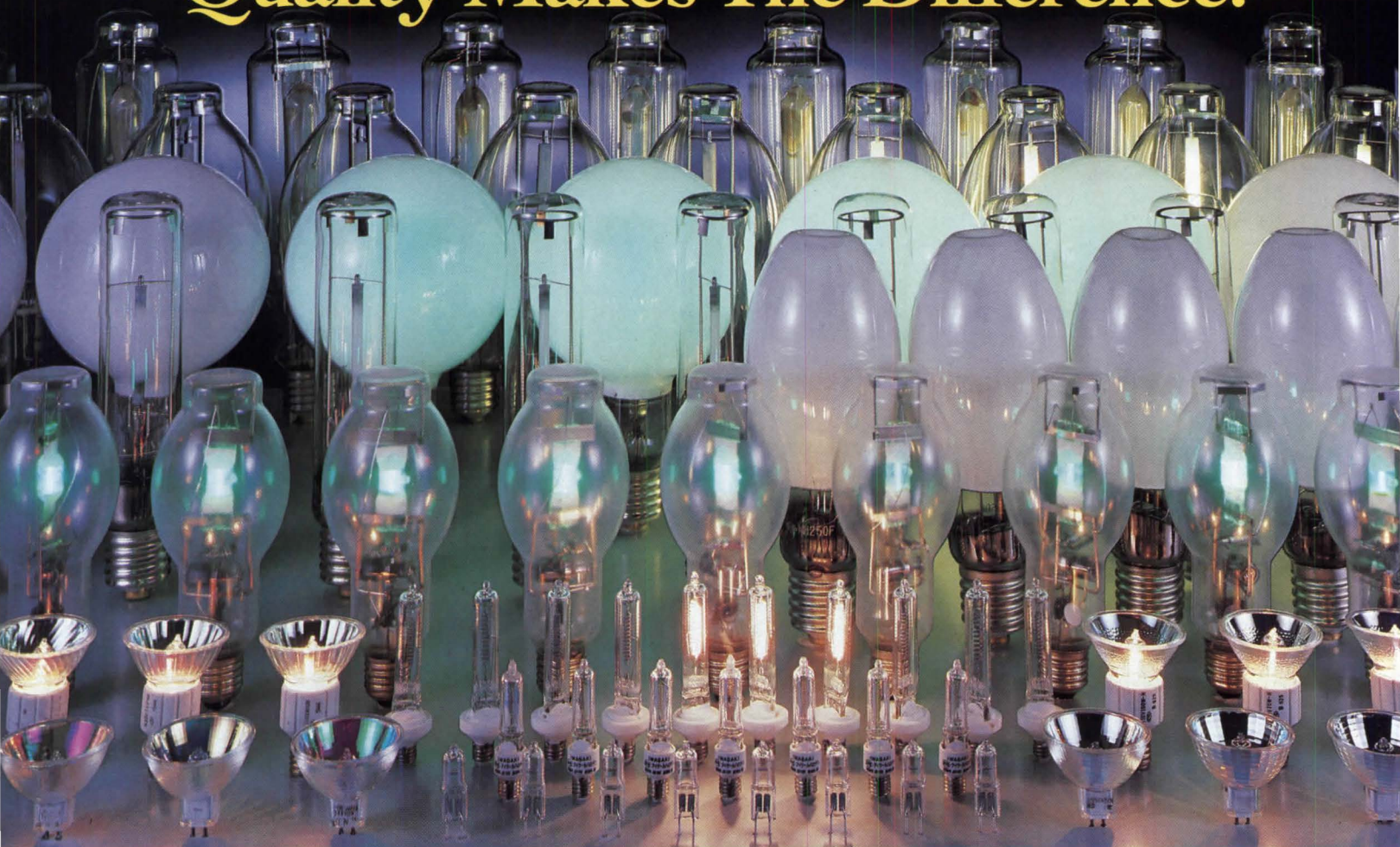
Using Theatrical Techniques in Architectural Lighting
1:00 p.m.–2:00 p.m.
Speaker: Mark Kruger, Principal, Kruger Assoc., New York.
Techniques based in theatrical lighting design are increasingly being applied not only to high public spaces like restaurants and nightclubs, but also to corporate areas such as lobbies, reception areas, and board rooms. This session will discuss how theatrical applications of angle, color, texture, and controls can be transferred to the architectural arena. Slides of reflected ceiling plans, and of techniques applied first in a theatrical situation and then in a commercial setting, will be used.


Stefan Graf

Retail Lighting as an Aid to Sales
2:15 p.m.–3:15 p.m.
Speaker: Stefan Graf, Illuminart, Ypsilanti, Mich.
Good lighting is one of the retailer's most valuable sales aids. This session will demonstrate how lighting can be used to attract attention and generate excitement, to motivate customers, and to stimulate sales. Lighting systems and accessories such as louvers, lenses, filters, pattern projectors, and specialty control devices that are applicable to retail projects will be discussed.

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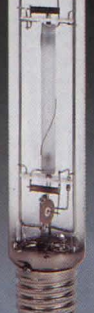


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Booth 1368 (714)751-1500

Iwasaki Electric Co. Ltd.
4337 Beltwood Parkway South
Dallas, TX 75244
Booth 1713 (214)960-1993
Eye brand HID and quartz halogen lamps. HID retrofit light sources.

Jac Jacobsen Industries Inc.
67 Holly Hill Lane
Greenwich, CT 06830
Booth 1403 (203)869-9330

Joslyn Manufacturing Co.
4000 East 116th St.
Cleveland, OH 44105
Booth 1721 (216)271-6600
Fixture lowering systems for high-mast, indoor, and outdoor lighting.

JPW Infracon
4 Sperry Road
Fairfield, NJ 07006
Booth 1162 (201)808-9191

K-S-H Inc.
10091 Manchester Rd.
St. Louis, MO 63122
Booth 1859 (314)966-3111
Specification-grade extruded and injection molded prismatic lenses.

Kesio Inc. Lighting Division
27 W. 251 Ontarioville Rd.
Hanover Park, IL 60103
Booth 2050 (312)289-0720
Low-voltage lighting, electronic ballasts.

Kichler Lighting
1541 East 38 St.
Cleveland, OH 44114
Booth 1433 (216)431-5400
Commercial/residential incandescent and fluorescent decorative lighting fixtures.

Kim Lighting
16555 E. Gale Ave.
City of Industry, CA 91749
Booth 1629 (818)968-5666
Pole-mounted and low level luminaires will be featured.

King Luminaire Inc./Stress-Crete
840 Walkers Lane P.O. Box 7
Burlington, Ontario,
Canada L7R 3X9
Booth 1645 (416)632-9301
Ornamental antique street lights with updated light sources.

Kingston Industries Corp.
Kingston Way
White Lake, NY 12786
Booth 1244 (914)583-5000
Aluminum reflector sheet/coil, parabolic louvers, and reflectors.

KLP Keene Lighting Products
41 Industrial Way
Wilmington, MA 01887
Booth 1231 (617)657-7600
Introducing Paraplus and featuring parabolic lighting.

Koch + Lowy Inc.
21-24 39th Ave.
Long Island City, NY 11101
Booth 1445 (718)786-3520
Contemporary lamps and fixtures for residential and commercial use.

Kosempel Manufacturing
M St & Erie Ave.
Philadelphia, PA 19124
Booth 1765 (215)533-7111
Custom metal spinnings with hydroforming and secondary finishes.

Kostka France
200 Lexington Ave.
New York, NY 10016
Booth 1659 (212)312-8080
Contemporary metal floor lamps and ceramic table lamps.

George Kovacs Lighting
24 W. 40th St.
New York, NY 10018
Booth 1903 (212)944-9606
Contemporary lamps, halogen torchieres, and wall sconces.

Kreon Rigk
106 Frank Lie
3200 Antwerp Belgium
Booth 1303 (3231) 242422

Krieg Leuchten GmbH
Ostenschlahstrasse 36
5870 Hemer, West Germany
Booth 1159 (0049) 23721144

Kulka Wiring Devices Inc.
520 South Fulton Ave.
Mt. Vernon, NY 10551
Booth 1743 (914)664-4024
Fluorescent and PL lampholders, wiring devices and harnesses.

Kurt Verson Co.
10 Charles St.
Westwood, NJ 07675
Booth 1737 (201)664-8200
Recessed and surface-mounted downlights and uplights.

Lampi Corp.
7272 Governor's Dr. West
Huntsville, AL 35806
Booth 1461 (205)837-3110
Fluorescent lighting fixtures.

Lazin Lighting
53 Green St.
New York, NY 10013
Booth 2021 (212)219-3888
Contemporary, contract, and decorative track lighting.

Ledalite Architectural Products
3511 Viking Way #8
Richmond, British Columbia
Canada V6V 1W1
Booth 1259 (604)270-4404
Architectural linear lighting W/TLS, ELS, and RLS producer.

Lee's Studios
1069 Third Ave.
New York, NY 10021
Booth 1409 (212)371-1122

Lee Colortran Inc.
1015 Chestnut St.
Burbank, CA 91506
Booth 1709 (818)843-1200
Dimmers and controls and new low-voltage and HID fixtures.

Leecraft Manufacturing Co. Inc.
21-02 44th Rd.
Long Island City, NY 11101
Booth 1624 (718)392-8800
Lampholders for new lighting products, reflectors and LED lights.

Legion Lighting Co. Inc.
221 Glenmore Ave.
Brooklyn, NY 11207
Booth 1575 (718)498-1770
Surface and recessed modular custom and fluorescent-standard fixtures.

Lehigh Electric Products
6265 Hamilton Blvd.
Allentown, PA 18106
Booth 1344 (215)395-3386

Lehr Co. Inc.
P.O. Box 1070
Mount Vernon, NY 10550
Booth 1644 (914)667-9500
Custom fixture designs and UL manufacturing.

LexaLite International Corp.
US 31 North
Charlevoix, MI 49720
Booth 1828 (616)547-6584
Injection molded reflectors, refractors, and lenses.

Light Sources Inc.
410 Main St.
Ansonia, CT 06401
Booth 1876 (203)736-9961
One-piece ten-foot fluorescent lamps. Available with fixtures.

Lightalarms Electronics Corp.
1170 Atlantic Ave.
Baldwin, NY 11510
Booth 1415 (516)379-1000
Emergency lighting systems; AC standby power units and exit signs.

Lighting Dimensions Magazine
135 Fifth Ave.
New York, NY 10010
Booth 1468 (212)677-5997
Trade magazine for lighting buyers, designers, and consultants.

Lighting Methods Inc.
1099 Jay St.
Rochester, NY 14611
Booth 1844 (716)328-1020
Lighting equipment for theater, film, TV, and architectural use.

Lighting Sciences
7830 East Evans Road
Scottsdale, AZ 85260
Booth 1073 (602)991-9260
Lighting design software; automated test equipment.

Lighting Services Inc.
Industrial Park
Route 9W
Stony Point, NY 10980
Booth 1745 (914)942-2800
Specification-grade track, accent and display lighting systems.

Lightning Bug Ltd.
1721 W. 170th St.
Hazel Crest, IL 60429
Booth 1615 (312)335-1063
Italian PL, halogen, fluorescent, and incandescent fixtures and lamps.

Lightolier
100 Lighting Way
Secaucus, NJ 07094
Booth 1231 (201)864-3000
New art glass, Carrara marble, and brass decorative fixtures.

Linear Lighting
31-30 Hunters Point Ave.
Long Island City, NY 11101
Booth 1736 (718)361-7552
Linear fluorescent, extruded steel, and recessed wall wash systems.

Lite Cycle
2805 Highway 407 P.O. Box 749
Lewisville, TX 75067
Booth 2013 (214)724-8286
Manufacturer of linear lighting products.

Lite-Tronics International
5317 W. 123rd St.
Alsip, IL 60658
Booth 1258 (800)323-3392
20,000-hour incandescent lamps, HID and specialty lighting sources.

Litecontrol Corp.
100 Hawks Ave. P.O. Box 100
Hanson, MA 02341
Booth 1514 (617)294-0100
Linear fluorescent architectural lighting systems in 23 colors.

Litelab Corp.
251 Elm Street
Buffalo, NY 14203
Booth 1869 (716)856-4491
Accent and kinetic lighting systems, low and line voltage parbeams, and dimming controls.

Litetouch Inc.
3783 South 500 West #7
Salt Lake City, UT 84115
Booth 1728 (801)268-8668
LiteTouch 2000, a menu-driven micro-processor based lighting control system.

Lithonia Lighting
1400 Lester Road
Conyers, GA 30207
Booth 1141 (404)922-9000
Fluorescent and downlighting products and new controls/dimmers.

LMT
P.O. Box 85666/MB 116
San Diego, CA 92138
Booth 1727 (619)271-7474
Three models of goniophotometers for measuring luminaires and lamps.

LTM Corp. of America
11646 Pendleton St.
Sun Valley, CA 91352
Booth 1839 (818)767-1313
Focusing track fresnel lights with barndoors and other accessories.

Lucifer Lighting Co.
P.O. Box 370375
Miami, FL 33137
Booth 1345 (305)531-7978
Low-voltage lighting including mini-spots and downlights.

Lumacell, Inc.
120 Nashadene Road
Scarborough, Ontario
Canada M1V 2W3
Booth 1259 (416)292-9782
Emergency and exit lighting. Remote test circuitry.

Lumax Ind.
Chestnut Ave. 4th St. P.O. Box 991
Altoona, PA 16603
Booth 1824 (814)944-2537
Fluorescent lighting products and specialty luminaires.

Lumenyte International Corp.
9601 Owensmouth Ave. Bldg. 19
Chatsworth, CA 91311
Booth 1276 (818)882-1811
Patented optical fiber that transmits colorful light long distances.

Lumiere Design & Manufacturing
31352 Via Colinas #103
Westlake Village, CA 91362
Booth 1455 (818)991-2211
Landscape and garden, machined and die-cast lighting fixtures.

Lumiram Electric Corp.
257 Mamaroneck Ave.
P.O. Box 297
Mamaroneck, NY 10543
Booth 1060 (914)698-1205
Specialty light sources: incandescent, fluorescent, quartz.

Lutron Electronics Co. Inc.
Box 205/Suter Rd.
Coopersburg, PA 18036
Booth 1651 (215)282-3800
Solid state dimmers and control systems including GRAFIX Eye.

Luxo Italiana S.p.a.
Via Delle More 1
Presezzo, Bergamo, Italy 24030
Booth 1403 035/611562
Contemporary desk, floor and ceiling lamps.

Macro Electronics Corp.
4711 East Fifth St.
Austin, TX 78702
Booth 1744 (512)385-6800
Architectural dimming systems for multiple light sources.

Max International
2235 Ralston Ave. P.O. Box 603
Burlingame, CA 94010
Booth 1038 (415)340-1270
LED message signs and non-neon gem and low-voltage halogen lights.

Mercury Lighting Products Co. Inc.
25 Brighton Ave.
Passaic, NJ 07055
Booth 1944 (201)779-5400
Outdoor and specialty fluorescent fixtures for many markets.

Metalloxyd Inc.
207 Greenwich Ave.
Stamford, CT 06902
Booth 1544 (203)324-7115
Reflector quality, low-iridescent anodized aluminum in several colors.

Mid-West Chandelier
100 Funston Rd.
Kansas City, KS 66115
Booth 1369 (913)281-1100
New parabolic fixtures, wall brackets, and retrofit parabolic louvers.

Miroflector Co. Inc.
40 Bayview Ave.
Inwood, NY 11696
Booth 1909 (516)371-1111
Commercial and architectural luminaires for a range of lamps.

Miyakawa American Corp.
26 West Thomwood Dr.
McHenry, IL 60050
Booth 1673 (815)344-3484
Hybec-super, quartz halogen, metal halide, and custom designed lamps.

Modular International
5700 Bunker Hill St.
Pittsburgh, PA 15206
Booth 1245 (412)661-3000
Line of patented interchangeable, mechanically secured fixtures.

Modulor USA
47-09 30th St.
Long Island City, NY 11101
Booth 1351 (718)482-1531
Engineering and design in lighting.

Multimicro Systems
987 Flamecrest Dr.
Stone Mountain, GA 30083
Booth 1731 (404)296-8966
Software for order entries, sales and commission analyses.

Multiworld Inc.
103 W. Broad St. Suite 300
Falls Church, VA 22046
Booth 1026 (703)532-6050
Contemporary Italian wall, floor, table, and suspension lamps.

Murray & Gillespie Computer Solutions
90 Nolan Court #22
Markham, Ontario
Canada L3R 4L9
Booth 1073 (416)477-0260
Indoor & outdoor lighting design software.

N.L. Corp./FEMCO
14901 Broadway Ave.
Cleveland, OH 44137
Booth 1225 (216)662-2080
Incandescent, HID down-lights and custom lighting products.

NSR Scientific
129 Loretta Avenue N.
Ottawa, Ontario
Canada K1Y 2J7
Booth 1259 (613)728-3551
Imaging photometric system.

National Cathode Corp.
252 West 29th St.
New York, NY 10001
Booth 1377 (212)594-1968
Versatile architectural lighting with uniform dimming.

National Lighting Co. Inc.
522 Cortlandt St.
Belleville, NJ 07109
Booth 1147 (201)751-1600
Commercial specification-grade fluorescent lighting.

Neo-Ray Products Inc.
537 Johnson Ave.
Brooklyn, NY 11237
Booth 1232 (718)456-7400
Contract fluorescent, wall-mounted, and wall wash equipment.

Nessen Lamps Inc.
36 Midland Ave.
Port Chester, NY 10573
Booth 1403 (914)934-1300
Line of traditional, contemporary, and high-tech fixtures.

Noral Lighting Inc.
5460 Wegman Dr. P.O. Box 360532
Cleveland, OH 44136
Booth 1945 (216)273-1011
Die-cast aluminum outdoor and indoor lanterns and fixtures.

NRD Inc./Penteco/Permex
2937 Alt Blvd. North
Booth 1827 (716)773-7634
Self-illuminated emergency exit lights.

Omega Energy
30997 Huntwood Ave. Suite 103
Hayward, CA 94544
Booth 1872 (415)487-5980
OMEGA MIRROR® optical reflector improves fluorescent lighting quality.

Osram Corp.
P.O. Box 7062 Jeanne Drive
Newburgh, NY 12550
Booth 1421 (914)457-4040
Innovative lighting products for commercial and industrial use.

Otteson Co.
Box 8939
Mountain Valley, CA 92728
Booth 1658 (714)962-4800
Hand-blown French glass shades from Vianne, lead crystal shades from Crisa.

Panasonic Industrial Co.
Two Panasonic Way
Secaucus, NJ 07094
Booth 1820 (201)348-7000
Light Capsules® Compact U-lamps®, and Color Correct-C Savers®.

Pappi Lighting
940 Meyerside Dr.
Mississauga, Ontario
Canada L5T 1R9
Booth 1459 (416)673-1702
Premium aluminum.

Paraflex Ind.
P.O. Box 920
Beacon, NY 12508
Booth 1466 (914)831-9000
Parabolic louvers, floodlights and other lighting products.

Paragon Electric Co. Inc.
606 Parkway Blvd.
Two Rivers, WI 54241
Booth 1453 (414)793-1161
Electronic and electromechanical lighting controls for various indoor and outdoor lighting situations. Light sensors for energy management applications are also available.

Parke Industries
457 West Allen St. Suite 104
San Dimas, CA 91773
Booth 1451 (714)599-1204
Fluorescent lighting fixtures that use reflectors as well as lamp and ballast combinations.

Parsons School of Design
MFA Lighting Program
66 Fifth Avenue
New York, NY 10011
Booth 1570 (212)741-8933

Paul D Metal Products
2225 W. Pershing Rd.
Chicago, IL 60609
Booth 1615 (312)847-1400
Architectural louvers, ceiling prod-

ucts, maximum and minimum security fixtures.

Peerless Electric Co.
945 Bouin
Ville La Salle, Quebec
Canada H8R 2G5
Booth 1259 (514)595-1671
Literature on fluorescent lighting fixtures.

Performance International Inc.
222 S.W. 27th St.
Ft. Lauderdale, FL 33315
Booth 1018 (305)467-7527
High-tech table and desk lighting.

Philips Lighting Corp.
200 Franklin Square Dr.
P.O. Box 6800
Somerset, NJ 08873
Booth 1033 (201)563-3000
Lamps developed for specifiers, designers, architects and OEM's.

Phoenix Electric Co. Ltd.
Hamamatsucho General Building 9F
2-15 2-Chome Hamamatsucho,
Minato-Ku
Tokyo, Japan 105
Booth 1832 03-578-9255
Tungsten halogen lamps, high pressure sodium, and metal halide lamps.

PLP Composite Technologies
P.O. Box 3200
Plymouth, MA 02361
Booth 1062 (508)747-3315
Fiberglass light poles.

Pole-Lite Marketing
267-06 Hillside Ave.
Floral Park, NY 11004
Booth 1346 (718)347-6969
Aluminum lighting standards, traffic mast arms, and related products.

Power Controls Corp.
1067 Bandera Rd.
San Antonio, TX 78228
Booth 1877 (512)436-9511
Slide, touch, and toggle dimmers and motor fan speed controls.

Powerline Communications Inc.
123 Industrial Ave.
Williston, VT 05495
Booth 1034 (802)658-6445
Lighting controls ranging from one point systems to 4000-point systems.

Prime Ballast
7213 Brigneer Road
Mechanicsburg, OH 43044
Booth 1049 (513)828-1350

Progressive Architecture
600 Summer St. P.O. Box 1361
Stamford, CT 06904
Booth 1725 (203)348-7531
Publication providing architectural professionals with the latest developments in their field.

Progressive Technology In Lighting
581 Ottawa Ave.
Holland, MI 49423
Booth 1250 (616)396-6722
Single-ended, compact fluorescent lamp applications and fixtures.

Prudential Lighting
1774 E. 21st St.
Los Angeles, CA 90058
Booth 1851 (213)746-0360
Fluorescent lighting systems of extruded aluminum and sheet metal.

PSI West
255 S. Seventh Ave.
City of Industry, CA 91746
Booth 1773 (818)968-9669
Lenses and diffusers for indoor and outdoor lighting fixtures.

Quantex Corp.
2 Research Court
Rockville, MD 20850
Booth 1552 (301)258-2701
The Perma-Light®, a solid-state electroluminescent lamp which emits light without generating heat.

Quoizel
325 Kennedy Dr.
Hauppauge, NY 11788
Booth 1277 (516)273-2700
Flush mounts/multiple arm fixtures and many other lighting fixtures.

RAB Electric Manufacturing
170 Ludlow Ave.
Northvale, NJ 07647
Booth 1064 (201)784-8600
Residential, commercial, and industrial lighting fixtures.

Radionic Industries Inc.
2525 West Moffat
Chicago, IL 60647
Booth 1803 (312)252-3400
Lighting ballasts, fluorescent, incandescent, miniature, and halogen light bulbs.

Reggiani S.p.a.
Via Misericordia 33
20057 Vedano al Lambro
Milano, Italy
Booth 1211 039 491 0212
Recessed and surface-mounted low-voltage lighting systems.

Restaurant and Hotel Design Magazine
633 Third Ave.
New York, NY 10017
Booth 1627 (212)986-4800
Monthly trade publication for the restaurant and hospitality industries.

Rig-A-Lite Co. Inc.
8500 Hansen Rd.
Houston, TX 77075
Booth 1046 (713)943-0340
Hazardous location lighting, fluorescent and HID.

RLR Industries
160 Adams Blvd.
Farmingdale, NY 11735
Booth 1054 (516)752-8855
Acrylic and polycarbonate diffusers for fluorescent, HPS, and compact fluorescent bulbs.

Robertson Transformer
13611 Thornton Rd.
Blue Island, IL 60406
Booth 1933 (312)388-2315
Fluorescent, HID ballasts, and low-voltage transformers.

Roxter Corp.
10-11 40th Ave.
Long Island City, NY 11101
Booth 1166 (718)392-5060
Low-voltage track, ceiling, and floor lighting fixtures.

Satco Products Inc.
110 Heartland Blvd.
Brentwood, NY 11717
Booth 1513 (516)243-2022
Novelty fixtures, accessories, picture lights, and energy-saving electrical items.

Schlage Electronics
5452 Betsy Ross Dr.
Santa Clara, CA 95054
Booth 1440 (408)727-5170
Security management and lighting management systems.

Scholl Lighting Standards
Bergen St. & Stanley Ave.
P.O. Box 704
Bethlehem, PA 18017
Booth 1843 (215)867-4131
Wood light standards for exterior lighting applications.

Scientific Lighting Products
11800 Adie Rd.
Maryland Heights, MO 63043
Booth 1373 (314)997-2408
Plastic and aluminum parabolic louvers and baffles for luminous ceilings or fluorescent fixtures.

Sea Gull Lighting Products Inc.
301 W. Washington St.
Riverside, NJ 08075
Booth 1951 (609)764-0500
Incandescent and fluorescent indoor-outdoor lighting fixtures.

Self Powered Lighting Inc.
8 Westchester Plaza
Elmsford, NY 10523
Booth 1636 (914)592-8230
Self-luminous exit and safety markers, electroluminescent exits.

Shakespeare Co.
P.O. Box 733
Newberry, SC 29108
Booth 1920 (803)276-5504
Fiberglass tapered or square light poles 10–45 feet in length.

Shat-R-Shield Inc.
771 Shrewsbury Ave.
Shrewsbury, NJ 07702
Booth 1742 (201)747-3470
Plastic-coated, shatterproof fluorescent and incandescent lamps.

Sherman Industries Pole Division
2131 Magnolia Ave. South
Birmingham, AL 35201
Booth 1952 (205)252-6900
Spun concrete and fiberglass street-lighting, floodlighting, distribution, and transmission poles.

Siemens Lighting Systems
186 Wood Ave. South
Iselin, NJ 08830
Booth 1521 (201)632-2840
Indoor fluorescent luminaires in both standard and custom designs.

Siltron Illumination Inc.
7915 Center Ave. P.O. Box 280
Cucamonga, CA 91730
Booth 1829 (800)874-3392
Emergency lighting and power supplies and wall sconces.

Sim-Kar Lighting Fixture Co. Inc.
601 E. Cayuga St.
Philadelphia, PA 19120
Booth 1850 (215)831-7700
Fluorescent lighting fixtures, HID lighting and display lighting.

Spero Electric Corp.
18222 Lanken Ave.
Cleveland, OH 44119
Booth 1554 (216)486-0666
Indoor and outdoor lighting, architectural area lighting.

Staff Lighting Corp.
P.O. Box 1020 Rt. 9W North
Highland, NY 12528
Booth 1119 (914)691-6262
Line and low-voltage track, compact fluorescent luminaires and various fixtures.

Starbrite Lighting
25 Saw Mill River Rd.
Yonkers, NY 10701
Booth 1936 (914)965-7465
Standard and low-voltage linear lighting systems.

Starfire Lighting Inc.
317 St. Pauls Ave.
Jersey City, NJ 07306
Booth 1559 (201)656-7888
Techtrac MRII, Xenflex, MYA halogen, Startube, Lucent, Startape, Treelite, Classique.

Steelcase
P.O. Box 1967
Grand Rapids, MI 49501
Booth 1311 (616)247-2710
Stationary and articulating task lighting products.

Sternlite Corp.
100 Arlington Ave.
Kearny, NJ 07032
Booth 1774 (201)997-7904
Halogen bulbs, track, recessed fixtures, and desk lamps.

Strand Electro Controls
2975 South 300 West St.

Salt Lake City, UT 84115
Booth 1027 (213)637-7500
Architectural dimming and control systems for all applications.

Supreme Lighting Corp.
122 E. Laurel Street
Mullins, SC 29574
Booth 1435 (800)221-1573
Longlife lightbulbs, fluorescent tubes, halogen discharge lamps.

Sweet's McGraw-Hill
1221 Avenue of the Americas
New York, NY 10020
Booth 1268 (212)512-4072
Pre-filed distribution and complementary databases which assist the design professional in product selection.

Swivelier Co. Inc.
33 Rt. 304
Nanuet, NY 10954
Booth 1327 (914)623-3471
Adjustable lighting luminaires and systems.

Sylvania Lighting/GTE
100 Endicott St.
Danvers, MA 01923
Booth 1203 (508)777-1900
Halogen, stage and theatrical, HID, and fluorescent light sources.

Taiwan Lighting
China Economic News Service
561 Chunghsiao East Rd., Sec. 4
Taipei, Taiwan, ROC
Booth 1168 02/763-1000
Quarterly journal published by the China Economic News Service covering lighting.

Targetti Sankey S.p.a.
Via Pratese 164
Florence, Italy 50145
Booth 1915 55/311871
Miniature low-voltage track systems with compact spotlights.

Task Lighting Corp.
910 East 25th St. P.O. Box 1094
Kearney, NE 68848
Booth 2008 (800)445-6404
Lumere, a patented, concealable, incandescent, component lighting system.

Teatronics Inc.
3100 McMillan Rd.
San Luis Obispo, CA 93401
Booth 1962 (805)544-3555
Entertainment, performance, and architectural dimming and control systems.

Tech Lighting
300 West Superior Suite 101
Chicago, IL 60610
Booth 1354 (312)337-0759
Contemporary halogen Euro-style lighting.

Tek-Tron Enterprises Inc.
637 So. Palm St. Suite I
La Habra, CA 90631
Booth 1938 (714)879-4000
The patented toroidal adaptor called Synergizer®.

Tekna Inc.
101 Twin Dolphin Rd.
Redwood City, CA 94065
Booth 1675 (415)593-1410
Contemporary low-voltage halogen lighting systems.

Teledyne Big Beam
290 East Prairie St. P.O. Box 518
Crystal Lake, IL 60014
Booth 1148 (815)459-6100
Emergency lighting equipment. Portable hand lamps.

Thomas Industries
7400 LaGrange Rd. Suite 400
Louisville, KY 40222
Booth 1608 (502)426-4960
Garden lighting, track, decorative products.

Thorn Lighting Ltd.
284 Southbury Rd.
Enfield, Middlesex, England
EN11TJ
Booth 1833 01/366-1166
Display lighting and floodlighting fixtures and lamps.

3M Co./Scotch Lamp Film
Staff Marketing Services Bldg.
225-3S-05 3M Center
St. Paul, MN 55144
Booth 2046 (612)733-1934
A prismatic film that transports light and transforms point source light into area lighting.

Times Square Lighting
318 W. 47th St.
New York, NY 10036
Booth 1528 (212)245-4155
Low-voltage track lights, framing and pattern projectors, and special effects lighting.

Tokiamerica Technologies Inc.
18662 MacArthur Blvd.
Irvine, CA 92715
Booth 1947 (714)476-1206
Tokistar replaceable bulb systems featuring a variety of low-voltage lighting.

Tradewinds, Inc.
783 N. Grove Rd., Suite 105
Richardson, TX 75081
Booth 1071 (214)699-1188
Lighting fixture trading promotion magazine from Taiwan.

Transtek International Ltd.
7000 Terminal Square
Upper Darby, PA 19082
Booth 1663 (215)734-1192
Lighting consultant services.

Triad Universal Magnatek
11111 Santa Monica Blvd.
Los Angeles, CA 90025
Booth 1927 (213)473-6681
Energy-saving electronic ballast.

Tri-Lite Plastics Inc.
Fallsington Industrial Park Bldg. 2
Fallsington, PA 19054
Booth 1040 (215)736-2553
Custom and stock extruded plastic profiles and other lighting products.

Tritek International Co.
8345 Reseda Blvd. Suite 202
Northridge, CA 91324
Booth 1939 (818)349-3870
Lamp fixtures and accessories, and electronic ballasts for PL lamps.

Troy-Trak Lighting Inc.
19 Chapel St.
Newark, NJ 07105
Booth 1403 (201)653-5332
Residential and commercial lighting fixtures and systems.

U.S. Powerbeam Inc.
32 Treptow St.
Little Ferry, NJ 07643
Booth 2040 (201)641-5888
Tubular MR-16 low-voltage lighting system.

Ultrabeam
1325 Carroll Ave.
San Francisco, CA 94124
Booth 1533 (415)822-5111
Metal space frame, lighting accessories, and fluorescent fixtures.

Union Lighting
4225 Phil Niekro Parkway
Norcross, GA 30093
Booth 1067 (404)381-1330

United Trading Co. Ltd.
200 Park Ave. Suite 303 East
New York, NY 10166
Booth 1568 (212)972-0889
Commercial low-voltage halogen fixtures and track lighting.

Ushio America Inc.
20101 S. Vermont Ave.
Torrance, CA 90502
Booth 1059 (800)841-0308
Ushio quartz halogen lamps for display lighting.

Valmont Electric
1430 E. Fairchild
Danville, IL 61832
Booth 1862 (217)446-4600
Electromagnetic and electronic fluorescent, HID, and neon ballasts.

Valmont Industries Inc.
Highway 275
Valley, NE 68064
Booth 1858 (402)359-2201
Street and area lighting for cityscapes and area lighting.

Vantage Controls Inc.
4415 South 500 West
Salt Lake City, UT 84123
Booth 1439 (801)266-2165
Lighting control systems for custom residential and commercial use.

Venture Lighting International
625 Golden Oak Parkway
Cleveland, OH 44124
Booth 1702 (216)232-5970
Metal halide and high pressure sodium lamps and accessories.

Via Lighting Canada Ltd.
55 Nugget Ave. Suite 230
Scarborough, Ontario
Canada M1S 3L1
Booth 1830 (416)299-5069
Track, down, and low-voltage halogen lamps and fixtures.

Visual Comfort Lighting
161 Sweet Hollow Road
Old Bethpage, NY 11804
Booth 1538 (516)756-1850

VIBA
% AIP International Corp.
48 Brookside Avenue
Old Bridge, NJ 08857
Booth 1269 (201)238-5441
Contemporary designs in decorative floor and table lighting.

Waldmann Lighting Co.
1714 S. Wolf Rd.
Wheeling, IL 60090
Booth 1158 (312)520-1060
Task lighting that panel mounts to open-office furniture systems.

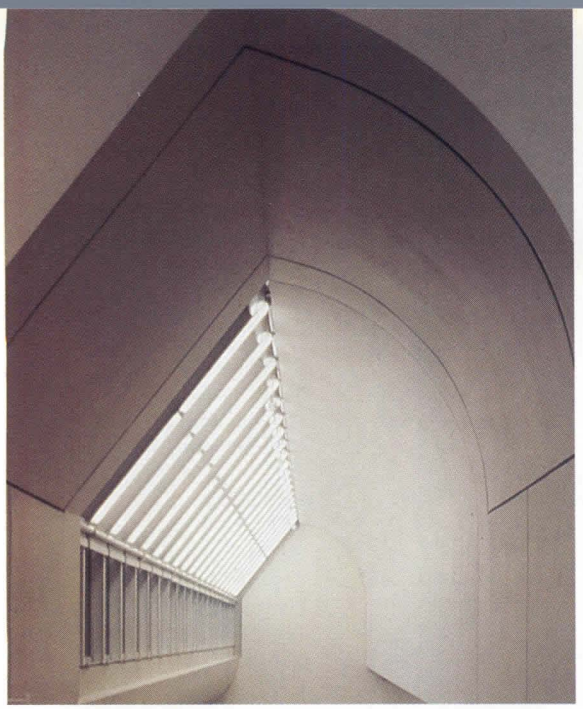
Wendelighting
2445 North Naomi
Burbank, CA 91504
Booth 2017 (213)559-4310
Interior and exterior accent lighting and optical projectors.

Westerfield Co.
770 Gateway Center Dr.
San Diego, CA 92102
Booth 1024 (619)263-6672
Energy-efficient lighting products, adapters, and conversion kits.

Western Circle
3645 N.W. 67th St.
Miami, FL 33147
Booth 2052 (800)654-5862

Yosgad Lighting Ind.
4-40 Banta Place
Fairlawn, NJ 07410
Booth 1646 (201)791-5590
U.L. listed, multishaped, multicolor, acrylic and bright white polyethylene hand-finished globes.

Zumtobel Lighting Inc.
311 Rt. 46 West
Fairfield, NJ 07006
Booth 1019 (201)882-9600
Direct and indirect lighting systems and interior fixtures.



Now in America to fulfill the unique vision of the elite specifier.

The world's finest architects, designers and consultants have consistently chosen Zumtobel as the one company best-suited to fulfill their inspired vision of lighting.

Now Zumtobel has made a major commitment to bring the full range of its resources to the American specifier: Luminaires that far exceed U.S. standards. A state-of-the-art manufacturing facility in Garfield, NJ. Unmatched advisory and support services. Uncompromising quality.

ZUMTOBEL

LIGHTING THE WAY

For further information and the name of your local Zumtobel Sales Representative, please contact us at: Zumtobel Lighting, 141 Lanza Avenue, Bldg. 16D, Garfield, NJ 07026 FAX 201 340-9898.

Circle **No. 409**

Exhibitor's List

See Exhibitor Index pg 11LW for complete description of products exhibited.

1759 A.L.P. Lighting & Ceiling Products
1058 A.W. Pistol
1609 Aamsco Lighting Inc.
1547 Abolite Lighting Inc.
1626 Advance Transformer Co.
1621 AFC/A Nortek Co.
1264 Alanod USA
1167 ALC-Louver GMBH
1339 Allite Inc.
1868 Aluminum Coil Anodizing
1133 American Facility Systems Inc.
1337 American Glass Light Co.
1841 American Louver Co.
1550 Ameron/Pole Products Div.
1840 Appleton Lamplighter
1614 Arc Lighting Div. Arc Sales
2002 *Architectural Lighting*
1708 Architectural Lighting Systems
2053 Art Directions
1772 Art Specialty
1441 Artemide Litech Inc.
1926 Artlogen Inc.
1669 Artup Corp.
1637 Atelier International Lighting
1935 Atlite Lighting
1476 Aura Lighting Inc.
1154 Azzizi Enterprises

1170 B&L Lighting Co.
1760 Badger USA
1924 Louis Baldinger & Sons Inc.
1751 Norbert Belfer Lighting Mfg.
1845 Better Buildings
1416 Beverly Hills Fan Co.
2006 Bieber Lighting
1545 Bieffeplast
1763 Bill Brown Sales
1726 The Bodine Co.
1540 Boyd Lighting Co.
1472 Brascal Manufacturing
1068 Brodwax Lighting
1613 Brüel & Kjaer Instruments
1847 Buhl Industries
2026 Bulbrite Industries Inc.

1259 Canadian Department of External Affairs
1625 Canterra Electronics Int'l.
1569 Capitol Lighting Co.
1251 Capri Lighting
1722 Carlon-Thyrocon
1152 Carpenter Emergency Lighting
1934 Celestial Products
1836 Chloride Systems
1045 Chronar Corp.
1403 The Coast Light Systems
1652 Coil Anodizers/Div. Lorin Ind.
2028 Con-Tech Lighting
1051 *Contract* Magazine
1769 Coronet Chandelier Originals
1463 Crestron Electronics
1958 CSL Lighting Inc.

2015 D.J.G. Factory Electrical Supplies
1150 Dansk Lights
1668 Davis Controls Corp.
1464 Designplan International
1941 Dinico Products Inc.

1509 EBT Inc.
1469 *ECT* Magazine
1145 Edison Price Inc.
2009 *Electric Wholesaling*
2009 *Electrical Construction & Maintenance*
1469 Electrical Construction Technology
1937 Electrical Distributor
1048 Electrix Inc.
1376 Electro Powerpacs Corp.
1137 Electronics Diversified Inc.
1821 Elliptipar Inc.
1238 Elsco Lighting Products Inc.
1326 Emco Environmental Lighting
1525 Emergi-Lite Inc.
1612 Empire Art Products Co. Inc.
1638 EMR Lighting
1429 Enercon Data Corp.
1756 Energy Saving Devices
1764 *Energy User News*
1942 ETL Testing Labs
2051 Etta Industries
1873 Exide Lighting Products

1053 *Facilities Design & Management*
1424 Fail-Safe Lighting Systems
1172 Fashion Electric Corp.
1072 Fiber Optic Systems Inc.
1563 Fiberstars
1676 Fibre Lite Corp.
1921 Flos Inc.
1665 Fluor-Tech Lighting Energy Engineering
1330 Fontana Arte S.p.a.
1733 Foremost Manufacturing Co.
1052 Formed Plastics
1030 Fyrnetics Inc.

1221 G.P.B. Beghelli
1338 Ganeko Inc.
1560 Gemma Studios
1809 General Electric Company
1551 G.E. Lighting Controls
1623 Genesta Manufacturing
1231 The Genlyte Group
1259 Gentec, Inc.
1662 Gil International
1427 Gim Metal Products
1259 Glass Effects by Riki
1902 Greenlee Landscape Lighting
1632 GTE Sylvania
1418 Guardian Light Co.

1231 Hadco Div./Craftlite Inc.
1729 Halco Marvin L. Walker & Associates
1350 Hampstead
1768 Hipotronics Inc.

1417 Holophane Div./Manville
1044 *Home Lighting & Accessories*
1363 Honeywell Inc.
1750 Hubbell Inc.
1321 Hydrel
1539 Hytron Electric Products Co.

1526 Illuminating Engineering Society of North America
1359 Illumination Concepts & Engineering
1940 Illuminotecnica Pitra Editoriale
1315 International Association of Lighting Designers
2010 *Interior Design*
1127 IPI Inc.—Lighting Division
1162 IPW Infracon
1854 Isolite Corp.
1368 Itech
1713 Iwasaki Electric Co. Ltd.

1403 Jac Jacobsen Industries Inc.
1721 Joslyn Manufacturing Co.

1859 K-S-H Inc.
2050 Kesio Inc. Lighting Div.
1433 Kichler Lighting
1629 Kim Lighting
1645 King Luminaire Inc.
1244 Kingston Industries Corp.
1231 KLP Keene Lighting Products
1445 Koch + Lowy Inc.
1765 Kosempel Manufacturing
1659 Kostka France
1903 George Kovacs Lighting
1303 Kreon
1159 Krieg Leuchten Gmbh Co.
1743 Kulka Wiring Devices Inc.
1737 Kurt Versen Co.

1461 Lampi Corp.
2021 Lazin Lighting
1259 Ledalite Architectural Products
1709 Lee Colortran Inc.
1624 Leecraft Manufacturing Co.
1409 Lees Studio
1575 Legion Lighting Co. Inc.
1334 Lehigh Electric Products
1644 Lehr Co. Inc.
1653/1828 Lexalite International
1876 Light Sources Inc.
1415 Lightalarms Electronics Corp.
1468 *Lighting Dimensions*
1844 Lighting Methods Inc.
1073 Lighting Sciences
1745 Lighting Services Inc.
1615 Lightning Bug Ltd.
1231 Lightolier
1736 Linear Lighting
2013 Lite Cycle
1258 Lite-Tronics International
1514 Litecontrol Corporation
1869 Litelab Corp.
1728 Litetouch Inc.
1141 Lithonia Lighting
1727 LMT

1839 LTM Corp. of America
1345 Lucifer Lighting Co.
1259 Lumacell, Inc.
1824 Lumax Industries
1276 Lumenyte International Corp.
1455 Lumiere Design & Manufacturing
1060 Lumiram Electric Corp.
1651 Lutron Electronics Co. Inc.

1744 Macro Electronics Corp.
1038 Max International
1944 Mercury Lighting Products Co.
1544 Metalloxyd Inc.
1369 Mid-West Chandelier
1909 Miroflector Co. Inc.
1673 Miyakawa American Corp.
1245 Modular International
1351 Modulor USA
1731 Multimicro Systems
1026 Multiworld Inc.
1073 Murray & Gillespie Computer Solutions

1225 N.L. Corporation/Femco
1259 NSR Scientific
1377 National Cathode Corp.
1147 National Lighting Co. Inc.
1232 Neo-Ray Products Inc.
1403 Nessen Lamps Inc.
1945 Noral Lighting Inc.
1827 NRD PAC/Penteco/Permex

1872 Omega Energy
1421 Osram Corp.
1658 Otteson Company

1820 Panasonic Industrial Co.
1459 Pappi Lighting
1466 Paraflex Industries
1453 Paragon Electric Co. Inc.
1451 Parke Industries
1570 Parsons School of Design
1615 Paul D Metal Products
1259 Peerless Electric Co.
1018 Performance International Inc.
1033 Philips Lighting Corp.
1832 Phoenix Electric Co. Ltd.
1062 PLP Composite Technologies
1346 Pole-Lite Marketing
1877 Power Controls Corp.
1034 Powerline Communications Inc.
1049 Prime Ballast
1725 *Progressive Architecture*
1250 Progressive Technology In Lighting
1851 Prudential Lighting
1773 PSI West

1552 Quantex Corporation
1277 Quoizel

1064 RAB Electric Manufacturing
1803 Radionic Industries Inc.
1211 Reggiani S.p.a.
1627 *Restaurant & Hotel Design* Magazine



PEEK-A-BOO

This shy guy goes about his business half concealed and quite unobtrusive. However he's not modest about his ability to rotate, tilt, and embrace internal accessories. You might say he's even a show-off when it comes to throwing his light around.

For a 281 series information kit, write on your letterhead to: Lighting Services Inc, Industrial Park Rt. 9W, Stony Point, NY 10980

1046 Rig-A-Lite Company Inc.
1054 RLR Industries
1933 Robertson Transformer
1166 Roxter Corp.

1513 Satco Products Inc.
1440 Schlage Electronics
1843 Scholl Lighting Standards
1373 Scientific Lighting Products
1951 Sea Gull Lighting Prod Inc.
1636 Self Powered Lighting Inc.
1920 Shakespeare Co.
1742 Shat-R-Shield Inc.
1952 Sherman Industries/Pole Div.
1521 Siemens Lighting Systems Div.
1829 Siltron Illumination Inc.
1850 Sim-Kar Lighting Fixture Co.
1766 Smallwood Limited
1554 Spero Electric Corp.
1119 Staff Lighting Corp.
1936 Starbrite Lighting
1559 Starfire Lighting Inc.
1311 Steelcase
1774 Sternlite Corp.
1027 Strand Electro Controls
1435 Supreme Lighting Corporation
1268 Sweet's McGraw-Hill
1327 Swivelier Company Inc.
1203 Sylvania Lighting/GTE

1168 Taiwan Lighting
1915 Targetti Sankey S.p.a.
2008 Task Lighting Corp.
1354 Tech Lighting
1938 Tek-Tron Enterprises Inc.
1675 Tekna Inc.
1148 Teledyne Big Beam
1962 Testronics Inc.
1608 Thomas Industries
1833 Thorn Lighting Limited
2046 3M Co./Scotch Lamp Film
1344 Thunder & Light Ltd.
1528 Times Square Lighting
1947 Tokiamerica Technologies Inc.
1071 Trade Winds Inc.
1663 Transtek International Ltd.
1040 Tri-Lite Plastics Inc.
1927 Triad Universal Magnatek
1939 Tritek International Co.
1403 Troy-Trak Lighting Inc.

2040 U.S. Powerbeam Inc.
1533 Ultrabeam
1067 Union Lighting
1568 United Trading Co. Ltd.
1059 Ushio America Inc.

1862 Valmont Electric
1858 Valmont Industries Inc.
1439 Vantage Controls Inc.
1702 Venture Lighting International
1830 Via Lighting Canada Ltd.
1269 Viba
1538 Visual Comfort Lighting

1158 Waldmann Lighting Co.
2017 Wendelighting
1024 Westerfield Co.
2052 Western Circle

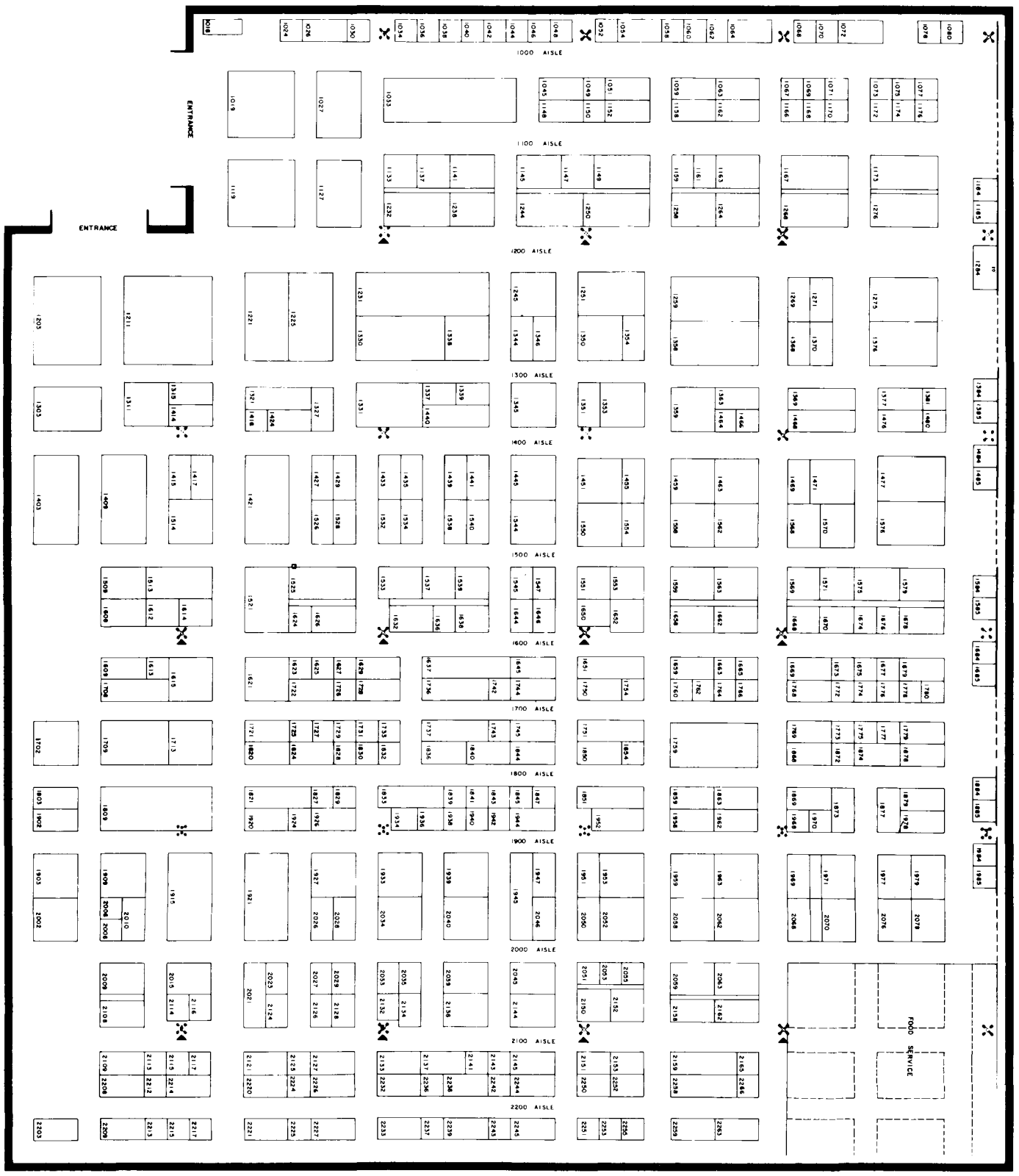
1646 Yosgad Lighting Industries

1019 Zumtobel Lighting Inc.

LIGHTING WORLD INTERNATIONAL

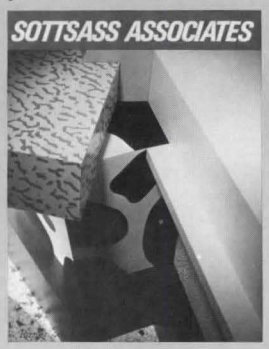
EXHIBIT HOURS

Wednesday, May 10	10:30–7:00
Thursday, May 11	10:00–7:00
Friday, May 12	10:00–5:00



P/A BOOKSTORE

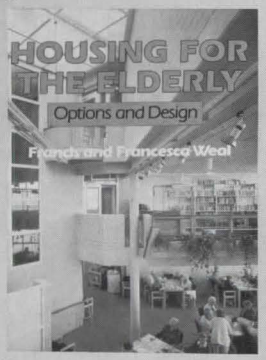
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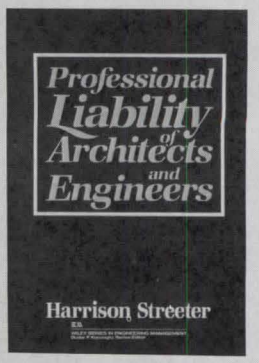
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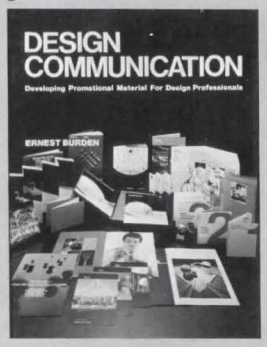
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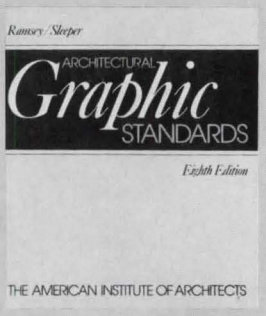
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6



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Order Information
To purchase books, circle appropriate numbers on the Reader Service Card in the back of this issue. Payment must accompany orders being shipped to P.O. Box numbers. Please allow 6-8 weeks delivery. Prices subject to change. Orders good only for U.S. addresses.

Send the card in an envelope to:
Paul McKenna
Progressive Architecture
P.O. Box 1361
Stamford, CT 06901

P/A Back Issues
A limited supply of the following issues are available at $7.00 a copy, Check MUST accompany order!
Send to the attention of
Joanne M. Improta.

March
Two by Pelli/Botta Library/Uses of Glass

February
Wolf/Gehry/Convention Centers/ Energy Conservation

January
36th Annual P/A Awards

December
Houses: The Design Process

November
Two Museums/Two Libraries/Malls /Lighting

Mid-October
Special Issue: Annual Information Sources

October
Special Issue: Solving the Housing Crisis

September
Interior Design/Flooring

1 Sottsass Associates
170pp., illus. ($50.00)
This collection of essays by Ettore Sottsass, Herbert Muschamp, Jean Pigozzi, and others, provide background to the presentation of the Sottsass studio's original designs, including interiors for Esprit, Knoll, Fiorucci, and many others.
Circle B601 under Books

2 Architectural Composition
by Rob Krier, 320pp., illus. ($65.00)
The principal aim of this book, according to the author, is to formulate and establish a set of ground rules to guide architectural composition. Historical examples are included and an analysis of building in the 20th Century completes the book.
Circle B602 under Books

3 Housing for the Elderly
by Francis and Francesca Weal 144pp., illus. ($59.50)
Subtitled Options and Design, this book describes in detail the considerations necessary for successful elderly housing. Six case studies of housing in the U.K. are discussed and two appendices provide a design checklist and list of elderly housing organizations in the U.K. and U.S.
Circle B603 under Books

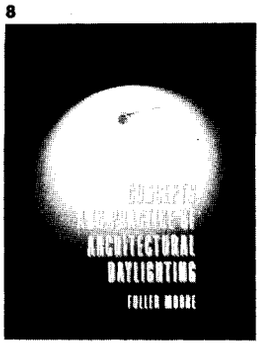
4 Professional Liability of Architects
by Harrison Streeter, 273pp., ($39.95).
A thorough, concise treatment of liability, this book describes the bases for liability, and covers the legal procedures that accompany a malpractice claim. Thirty-two case studies represent a variety of liability claims.
Circle B604 under Books

5 Design Communication
by Earnest Burden 224pp., illus. ($44.00)
An organized approach to building effective communication tools for design firms, this book breaks down the process of devising a corporate image into easy-to-follow steps. Examples of logos, letterheads, and promotional literature are included in this fully-illustrated volume.
Circle B605 under Books

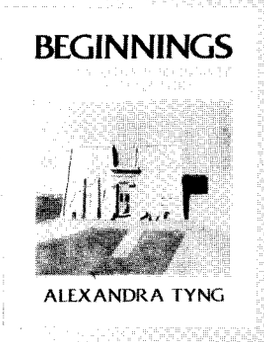
6 Sourcebook of Modern Furniture
by Jerryll Habegger and Joseph H. Osman, 470pp., illus. ($49.50)
The designs cataloged in this volume represent the work of industrial designers and architects who have been influential in the evolution of modern furniture. Each design is fully illustrated and referenced by designer in the book's index and by manufacturer in the list of suppliers.
Circle B606 under Books

7 Ramsey/Sleeper Architectural Graphic Standards, Eighth Edition
edited by John Ray Hoke Jr., AIA, 854 pp., illus. ($150.00)
With 229 new pages, the latest edition of this essential reference source expands and improves existing topics and includes three new chapters covering Sports Facility Design, Energy Design, and Historic Preservation.
Circle B607 under Books

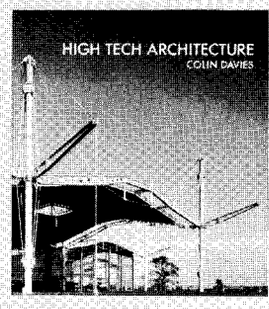
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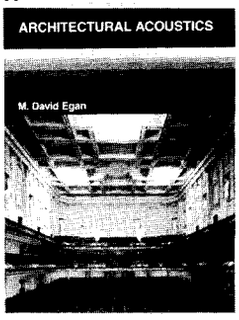
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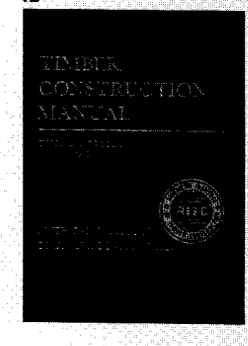
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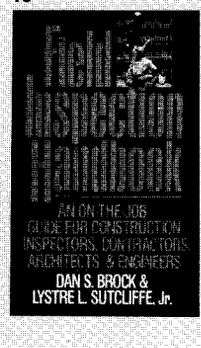
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12



13



8 Concepts and Practice of Architectural Daylighting
by Fuller Moore, 290pp., illus. ($47.95)
A history of daylighting techniques from Ancient Egypt to Post-Modernism is traced in the first portion of this monograph, while subsequent chapters provide details of light properties, site selection, and design considerations.
Circle B608 under Books

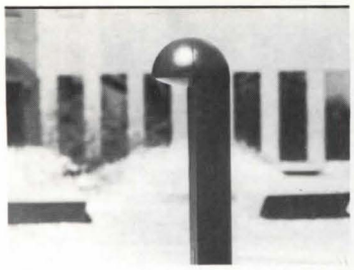
9 Beginnings: Louis I. Kahn's Philosophy of Architecture
by Alexandra Tyng, 198pp., illus. ($38.50)
Written by Kahn's daughter, this work traces the chronological development of the major themes in Kahn's work: form, order, and design; silence and light; and city planning and urban renewal. Examples that illustrate each theme are discussed.
Circle B609 under Books

10 High Tech Architecture
by Colin Davies, 159pp., illus. ($45.00)
A comprehensive overview of high-tech architecture, this volume examines over 40 projects in Europe, Asia, and the US. Detailed plans and photographs illustrate each project and an index of architects is also included.
Circle B610 under Books

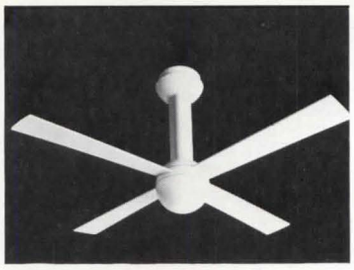
11 Architectural Acoustics
by M. David Egan, 411pp., illus. ($41.95)
This book outlines the basic theory of sound and vibrations and through detailed drawings and diagrams, illustrates solutions to acoustical problems in buildings. A summary of formulas and conversion factors are also included.
Circle B611 under Books

12 Timber Construction Manual, Third Edition
by the American Institute of Timber Construction
835 pp., illus. ($46.95)
Organized into three parts which cover general, design, and reference topics, this volume provides technical data and design solutions for timber buildings. Also included are tables showing load-bearing capacities of different grades of timber and selected AITC standards for construction.
Circle B612 under Books

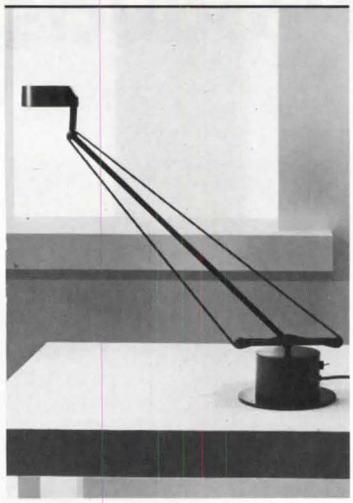
13 Field Inspection Handbook
by Dan S. Brock & Lystre L. Sutcliffe, Jr., 544pp., illus. ($52.50)
Billed as an on-the-job guide, this book offers concise engineering, design and technological guidelines for the construction process and provides specific cost-cutting suggestions and some problem solutions.
Circle B613 under Books



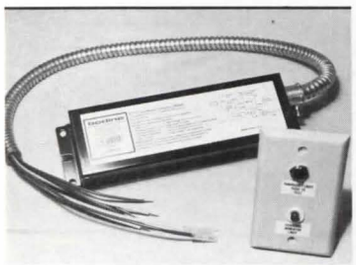
Bega Lighting
Pole top luminaires for garden, park, and pedestrian area lighting are available in a choice of HID light sources.
Circle 110 on reader service card



Beverly Hills Fan
The Stratos series of ceiling fans was designed by Ron Rezek. The reversible, four-speed fans are offered in a range of colors and finishes.
Circle 111 on reader service card



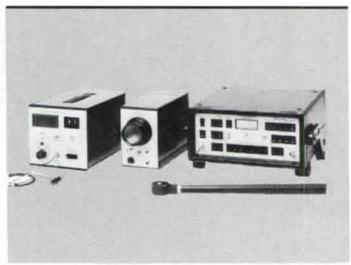
Bieffeplast
The Tender halogen table fixture is made of painted steel and has two light-intensity levels. The angle and height of the arm are adjustable.
Circle 112 on reader service card



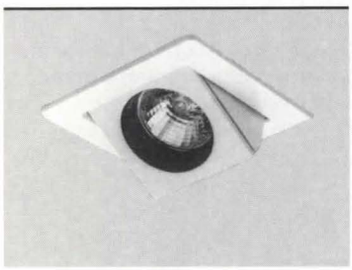
Bodine
An emergency ballast, the B113 converts a variety of downlight, sconce, and recessed wall fixtures into emergency lights. It operates one 5-, 7-, 9-, or 13-watt compact fluorescent lamp.
Circle 113 on reader service card



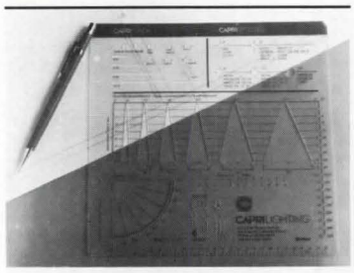
Boyd Lighting
The Saturn floor fixture is available in gloss white enamel or silver granite and stands 62½ inches high. The fixture produces ambient uplight and diffused downward illumination.
Circle 114 on reader service card



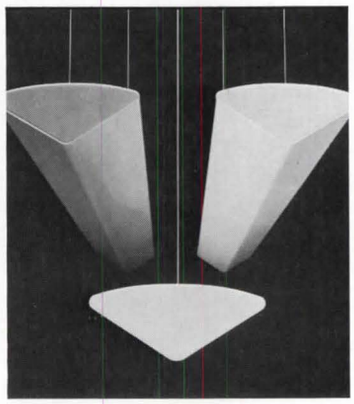
Brüel & Kjaer
Luxmap contour mapping software can be used as a luminaire prototype evaluation and documentation system. A precision photometer and a computer make up the system.
Circle 115 on reader service card



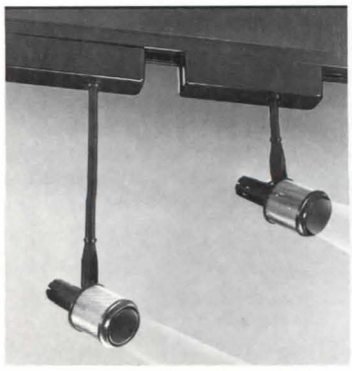
CSL Lighting
Halogena is a complete line of miniature round and square, recessed, low-voltage halogen downlights and wall washes that utilize up to 50-watt MR16 lamps.
Circle 116 on reader service card



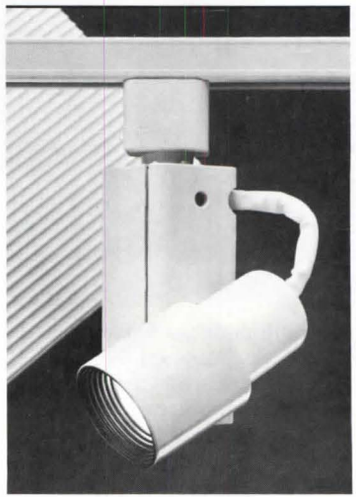
Capri Lighting
A design template for lighting layouts permits rapid location of track and recessed lighting layouts in a quarter-inch scale. The guide shows beam angles from 6 to 42 degrees.
Circle 117 on reader service card



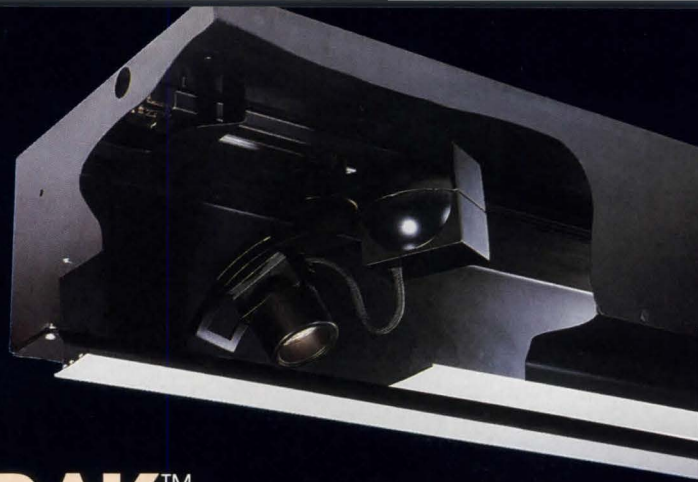
Coast Light Systems
Litewedge is a high-efficiency, wide-spread extruded indirect fixture that reaches 125 degree maximum candlepower.
Circle 118 on reader service card



Con-Tech Lighting
The new low-voltage Micro/Lyte™ 911 Series features compact fixtures, unobtrusive light sources, and an air-flow cooling system. Two new MR11 lamps can be used in the small fixtures.
Circle 119 on reader service card

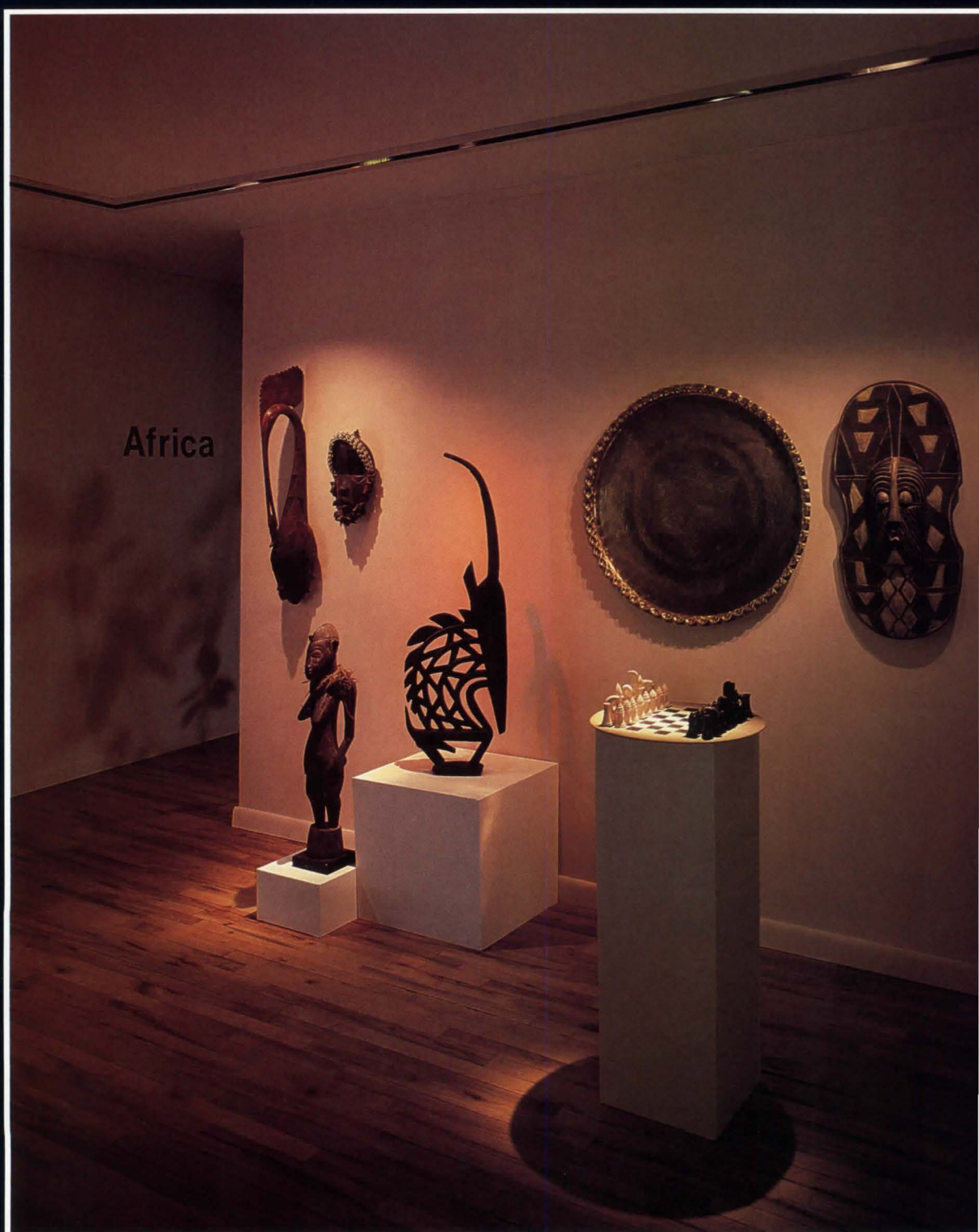


Cooper Lighting
A new Power-Trac lampholder called L2711 accepts a Q20 MR11 lamp and is available in narrow spot, spot, and narrow flood lamp configurations.
Circle 120 on reader service card



The Beauty of Track Lighting... without the Beasts!

RECESSED•TRAK™
From ALKCO



Track systems for accent lighting used to mean that the most noticeable (and distracting) accents were the track fixtures themselves!

Those days are over. New Recessed•Trak™ fits flush into any ceiling system...turns corners, runs to any length you desire. It tracks without distraction!

Totally concealed inside the housing, lightmodules can be placed anywhere along the track, rotated 380° and adjusted up to 40° from vertical.

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Miniaturized quartz halogen lamps emit true white light with exceptional color rendering.

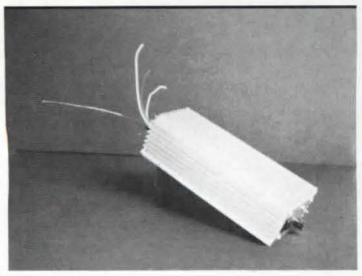
Now, when your accent lighting message isn't the system itself, your medium most surely should be Recessed•Trak, from Alkco.

For your copy of Alkco's new condensed Space Enhancers catalog, write to the address below.

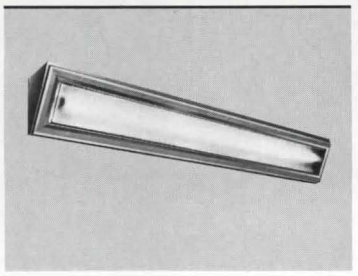
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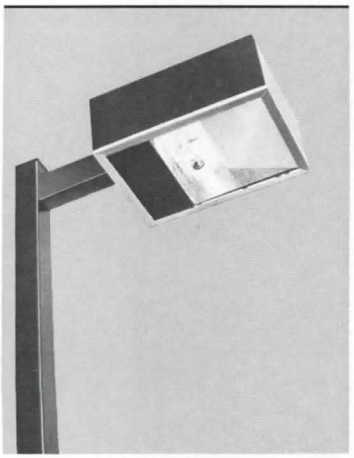
Davis Controls
The LCM 20/40 family of power lighting controllers regulates one 20-amp, fluorescent, or HID lighting circuit.
Circle 121 on reader service card



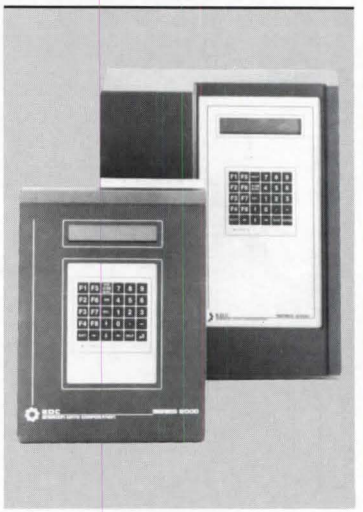
Designplan
Designed for use in wet applications, the Tuscan series of vandal-resistant fixtures is made up of a steel body and a polycarbonate diffuser.
Circle 122 on reader service card



Electrix
The halogen ladder system consists of two parallel 10-foot cables attached to ceiling-mounted eyehooks. A metal housing holds a 75-watt transformer.
Circle 123 on reader service card



Elsco Lighting Products
Display lighting called Auto King VI and Auto King 5 are metal halide 1000-watt sharp cut-off luminaires.
Circle 124 on reader service card



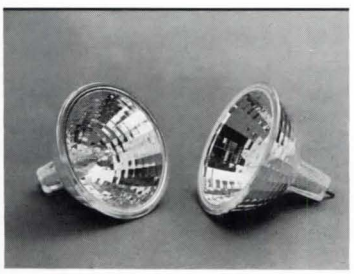
Enercron Data
A programmable lighting controller called ILC-2000 complements a complete line of on/off lighting control systems, including pre-wired relay panels, custom switch panels, and 2- or 3-wire component relays.
Circle 125 on reader service card



Flos
Fritz, a new task fixture designed by Perry King and Santiago Miranda, stands 21 inches high, uses a 50-watt halogen lamp, and features a dual position switch and adjustable shade.
Circle 126 on reader service card

ALUMA-LUX®

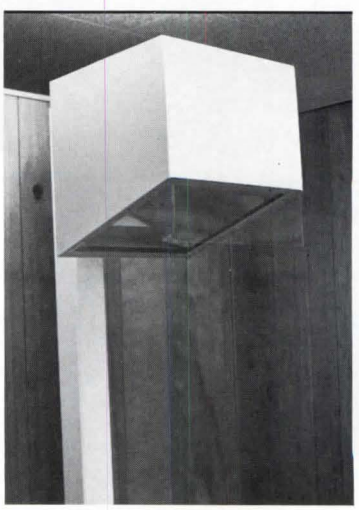
Foremost Manufacturing
The Aluma-Lux process produces an "anti-iridescent" reflector for use with compact fluorescent lighting sources.
Circle 127 on reader service card



GE Lighting
High Performance Precise improved low-voltage MR16 lamps have an increased life of 4000 hours. The line of 75-watt bulbs also features an improved ceramic adhesive.
Circle 128 on reader service card



Gemma
The collection of fourteen handcrafted, contemporary, and traditional fixtures feature multifaced glass shades, brass fittings, and solid copper and brass or porcelain bases.
Circle 129 on reader service card



Guardian Light
The new VFT series, designed for parking lots and automotive dealerships, combines a specular and segmented reflector with a vertical lamp to maximize forward light output.
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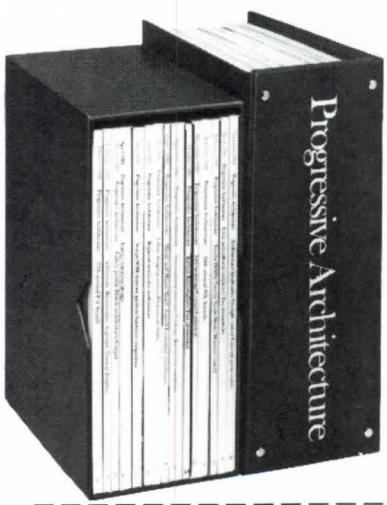
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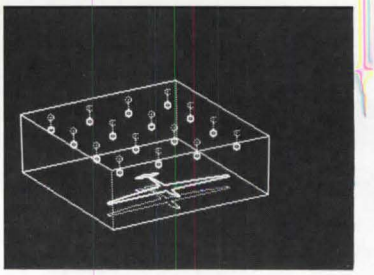
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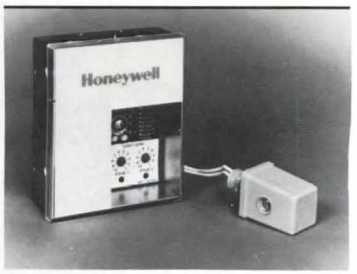
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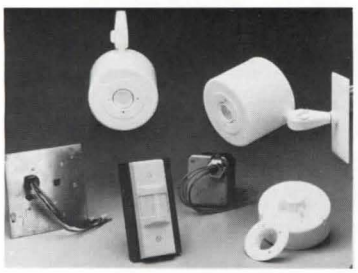
Hadco
A prismatic refractor globe with a reflector called Victorian II provides a downward streetside efficiency of 41.2 percent with a 150-watt HPS lamp.
Circle 131 on reader service card



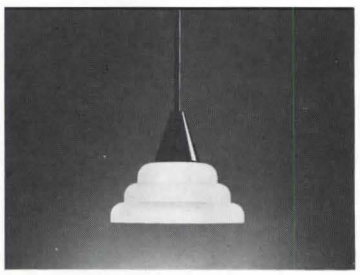
Holophane
The Computer Aided Lighting Analysis program allows designers to develop a lighting system by using a computer keyboard's arrow keys or a separate digitizer.
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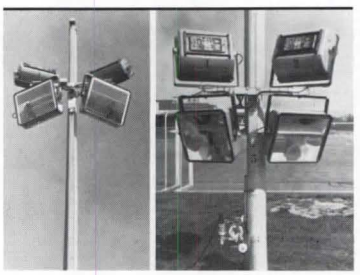
Honeywell
The CR7075 outdoor lighting control system consists of a two-stage lighting control and a cadmium-sulfide photoelectric sensor. A single remote photo cell controls two separate circuits.
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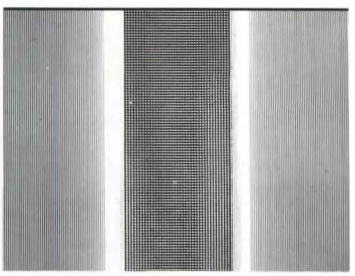
Hubbell
Passive infrared automatic occupancy sensors called H-Moss turn lights on and off in virtually any size or shape room, including hallways, offices, and conference rooms.
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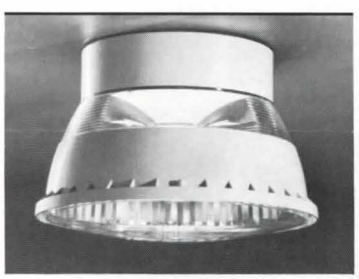
IPI
Designed by Roberto Pamio for Leucos, the Nelly suspension pendant fixture provides low-voltage downward and reflective light through a handblown Murano etched-glass diffuser.
Circle 135 on reader service card



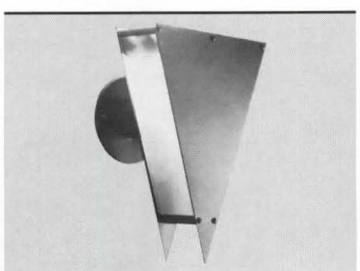
Joslyn
The Track Lowering System features an extruded guide rail and safety brake units. As many as eight 200-watt floodlights can be mounted on a single pole.
Circle 136 on reader service card



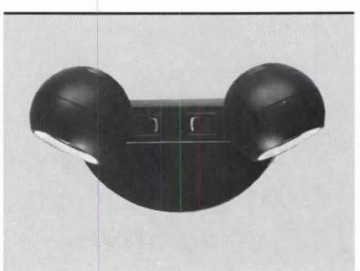
KSH
The KSH-3E® computer reflected lens consists of four optical bands to minimize veiling reflections and provide energy-efficient lighting.
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Kim Lighting
The PGL vertical lamp, cut-off luminaire offers low brightness and uniform illumination in parking garage applications.
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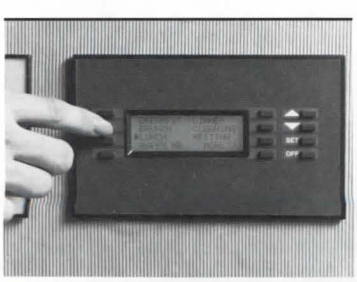
Koch + Lowy
The Tria Wall Sconce, designed by Andrzej Duljas, measures 12 inches in length and 8 inches wide. The 300-watt halogen fixture is finished in black aluminum and cobalt blue glass.
Circle 139 on reader service card



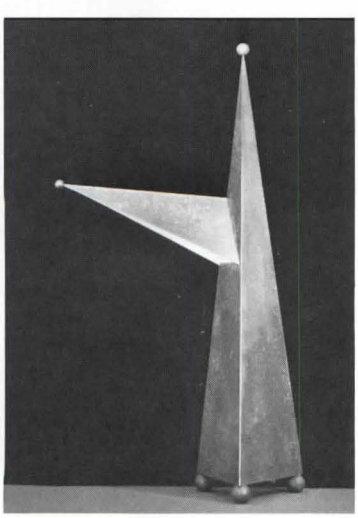
George Kovacs
Robert Sonneman designed a new series of halogen fixtures that all feature a 2½-inch diameter globe shade. A single and double wall model is offered along with a table version.
Circle 140 on reader service card



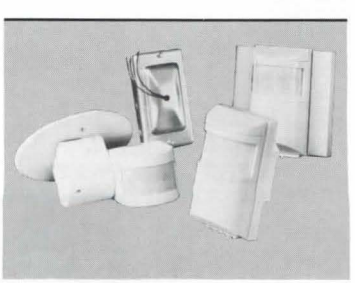
LTM
The Designer Fresnel 150 Series of track lighting features spot to flood focusing, clean cutting, and many accessories. Custom colors complement five standard finishes.
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Lee Colortan
A remote dimming system called Viewpoint features digital control stations with alpha-numeric liquid crystal displays and back-up memory.
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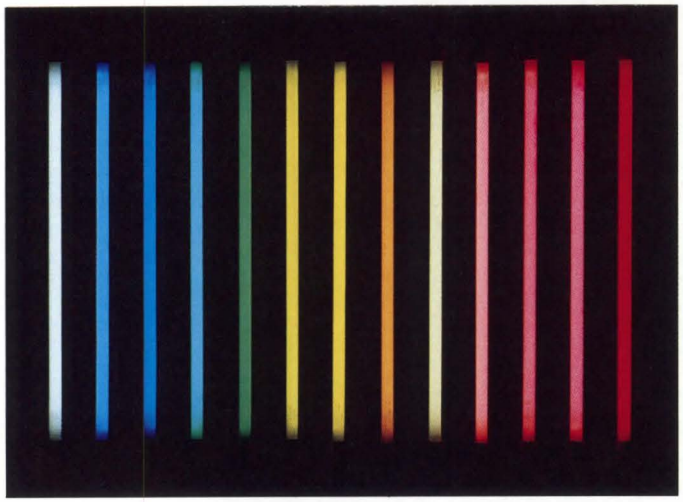


Lehr
The Spire Desk halogen fixture is available in bronze or nickel silver. The luminaire has a touch activated, four level switch and stands 27 inches tall.
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Leviton
Wall- and ceiling-mounted motion sensor switches cover a 180-degree field of view. The passive infrared sensors are rated at both 120 and 277 volts.
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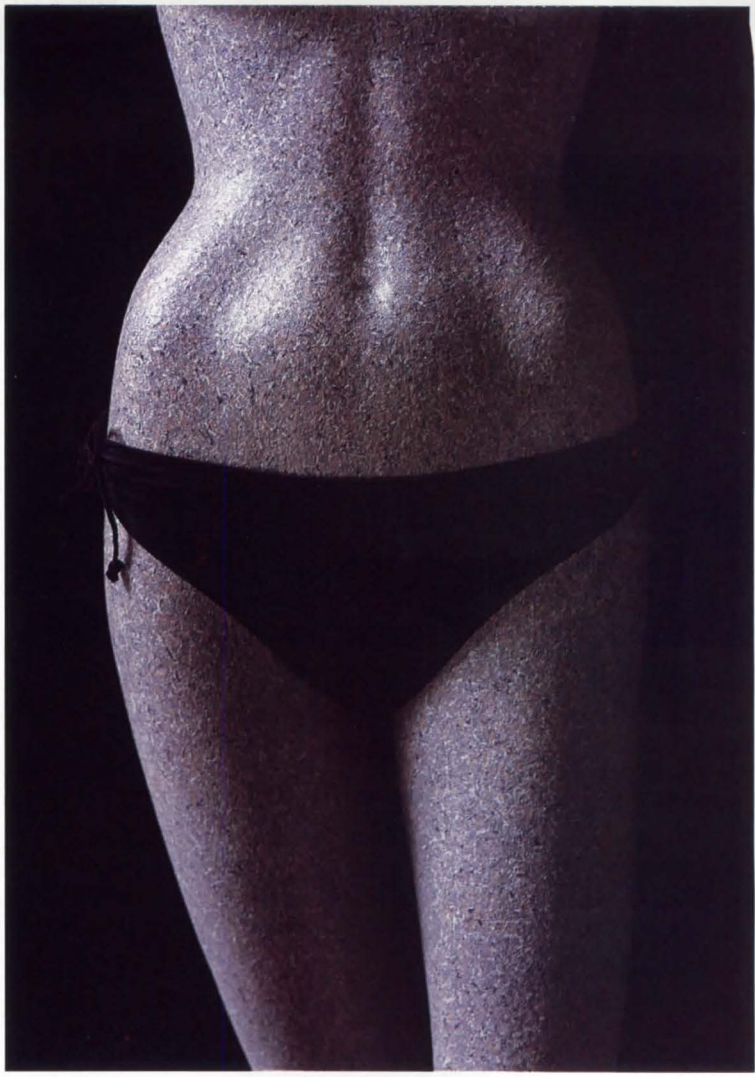
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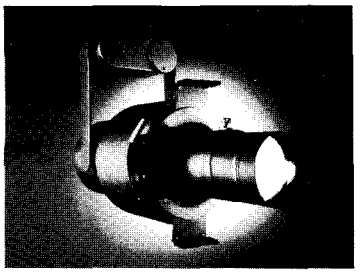
INFORMATION

For additional information about any product or service featured, please circle the appropriate reader service number on the postage-free card at the back of the magazine.

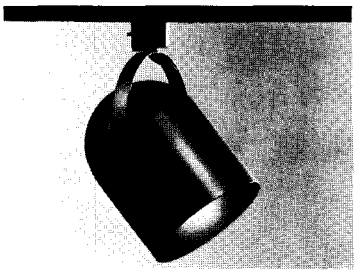
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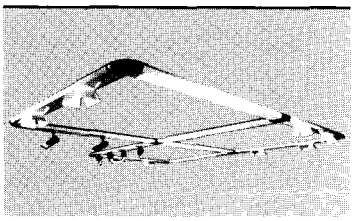
Lightalarms
The redesigned Combination Emergency Light/Exit Sign now offers front mounted PAR 18 or PAR 36 size heads and a more powerful battery for increased remote capacity.
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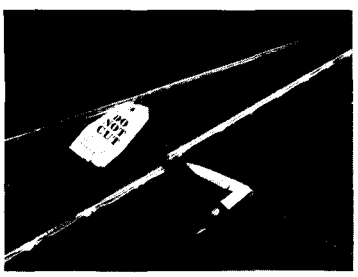
Lighting Services
The Q-250 indoor floodlight is a compact, wide-beam, adjustable fixture with an anodized reflector. Four adjustable framing shutters are offered.
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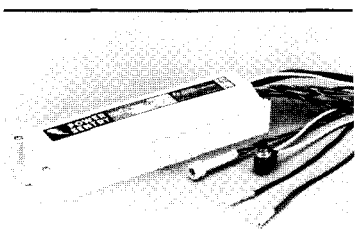
Lightolier
The Snub Nose 38 accepts a broad range of PAR 38 cool beam and tungsten halogen lamps, as well as standard spot and flood lamps up to 250 watts.
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L'Image
A suspended, linear lighting system called Aura is based on an integrated system of modules, connectors, and energy-efficient light sources—fluorescent, low- and line-voltage halogen.
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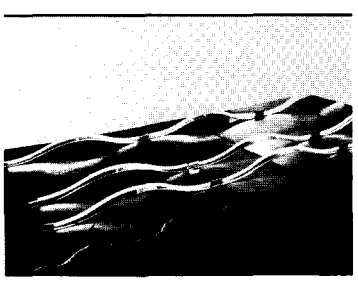
Litelab
Field-cuttable Tracktube™, a slim delineator linear lighting system, is available in several styles.
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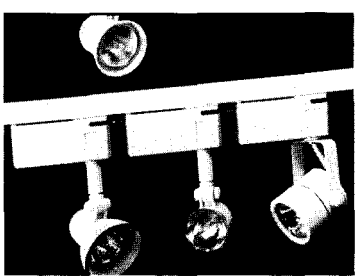
Lithonia Lighting
The Power Sentry PS300, a new easy-to-install, emergency battery pack, converts existing 2-foot or 4-foot fluorescent fixtures into maintenance-free emergency lighting units.
Circle 150 on reader service card



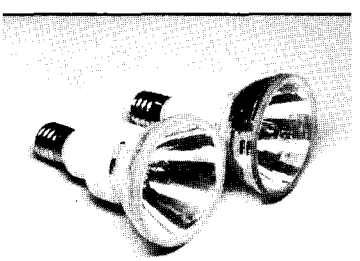
Loran
Part of the nightscaping Pro-Liter Series, Celebrity is a ground-mounted outdoor lighting fixture. An extruded aluminum housing holds an MR16 quartz halogen lamp.
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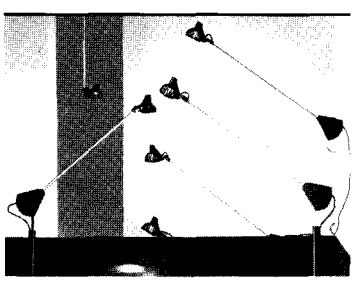
Lucifer Lighting
Flureon, an alternative to neon lighting, is a collection of slim fluorescent lamps available in shades of white, a variety of bright colors, and in curved configurations.
Circle 152 on reader service card



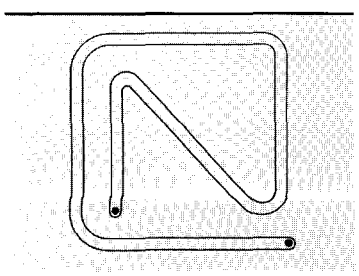
Max International
Cost-effective, heat-reducing halogen fixtures are available in 36 designs and provide quality color rendition.
Circle 153 on reader service card



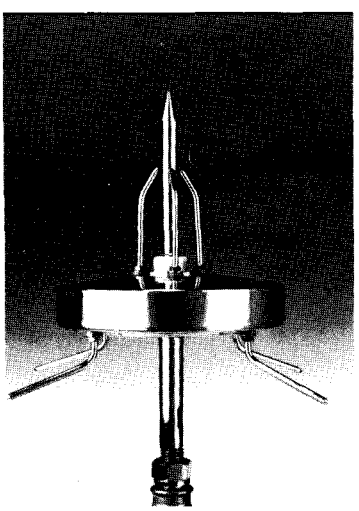
Miyakawa America
The Performance Reflector Mirror Lamp provides more than 100-watt halogen lamp efficiency with only 60 watts. The compact fixture operates on line voltage.
Circle 154 on reader service card



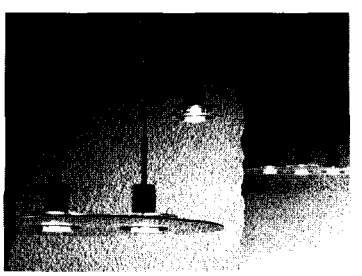
Multiworld Lighting
The NOI Collection, designed by Giovanni Griganai, consists of wall, hanging, ceiling, table, floor, working, reading, and spot fixtures. The laquered metal body is fully adjustable.
Circle 155 on reader service card



National Cathode
Cold cathode lighting offers uniform dimming, long life, and low installation and maintenance costs. Remote transformers are available.
Circle 156 on reader service card



National Lightning Protection
A patented, non-radioactive lightning rod called Prevectron uses atmospheric electrical fields to shield structures from lightning. Encased in a waterproof housing, it requires no external power source.
Circle 157 on reader service card



Nessen Lamps
The Network hanging fixture from the new Sverige line is offered in a range of sizes including fixtures with single, double, and triple light sources.
Circle 158 on reader service card

PARSONS SCHOOL OF DESIGN

Master of Fine Arts degree in

LIGHTING DESIGN

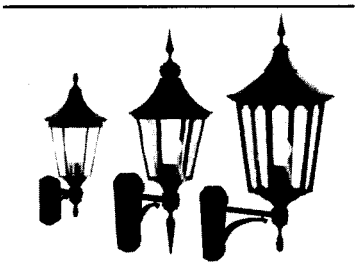
A program in lighting design for architects, engineers, interior designers, theatre designers and other design professionals that can be pursued on a full or part-time basis.

For more detailed information and an application, please call or write:

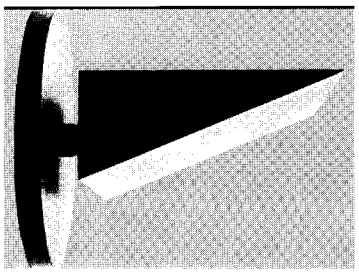
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(212) 741-5424

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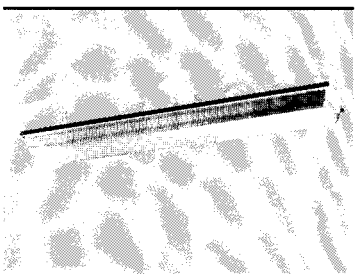
Noral
Outdoor residential lighting features shatter-resistant lenses and corrosion-resistant metal bases. Black, white, and patina green finishes may be specified.
Circle 159 on reader service card



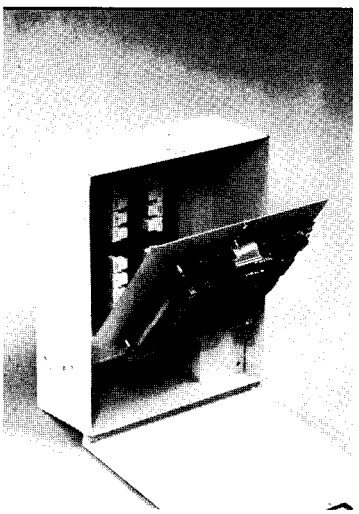
Norbert Belfer Lighting
The Wedge is a low-profile, wall mounted, versatile miniature sconce uplight.
Circle 160 on reader service card



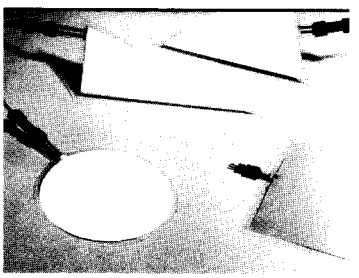
Osram
The Dulux El electronic light bulb has a service life up to 13 times longer than incandescents and energy savings up to 75 percent. A medium screw base facilitates installation.
Circle 161 on reader service card



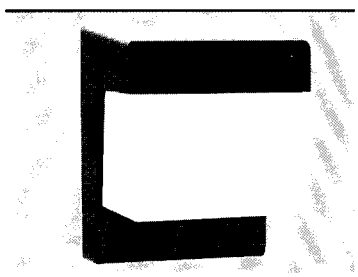
PSI West
Low profile, low brightness security lenses that are enclosed in metal are designed for high-vandal applications such as schools, public transportation areas, and penitentiaries.
Circle 162 on reader service card



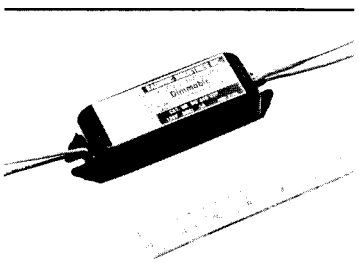
Powerline Communications
The Watchkeeper series of lighting controls for intelligent buildings is intended for commercial or industrial applications.
Circle 163 on reader service card



Quantex
Perma-Light™, a flat, thin electroluminescent lamp, emits light without generating heat. Made from patented components, the lamp is available in different sizes or shapes.
Circle 164 on reader service card



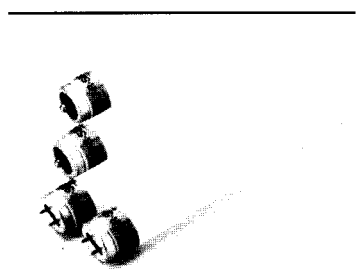
RAB Electric
A passive infrared sensor controls LIGHTAlert® motion-activated lighting fixtures, which detect movement within a 50-foot protection zone.
Circle 200 on reader service card



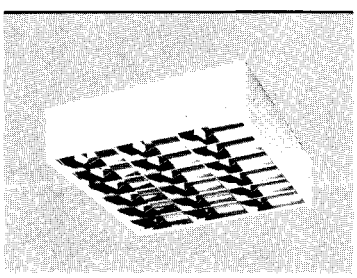
Radionic Industries
A new line of U.L. listed, lightweight dimming ballasts provide 100 percent, 70 percent, and 50 percent light intensity levels.
Circle 201 on reader service card



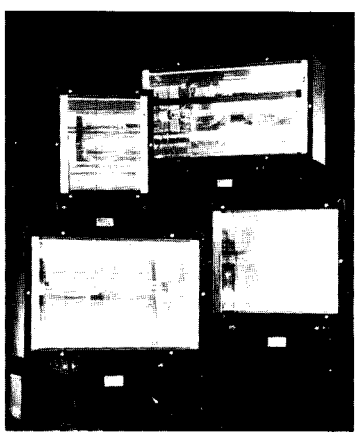
Rejuvenation Lamp & Fixture
The Hawthorne art glass Craftsman hanging lantern is solid brass and features a covered light source.
Circle 202 on reader service card



Shat-R-Shield
A new line of fluorescent lamps are coated from end to end with Surlyn®, a clear, tough DuPont plastic that resists punctures and abrasions.
Circle 203 on reader service card



Siemen's Lighting Systems
Luminaires from the Sideko Neu collection have movable sockets to easily change fixture distribution. The 4-inch deep housing may be surface or pendant mounted.
Circle 204 on reader service card



Special FX Lighting
Neo-Balance light filtering systems for HID sources address white balancing, color correction, and special effects in accent lighting. The high temperature-resistant filters are available in sizes up to 24″ x 24″.
Circle 205 on reader service card

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MAY 10, 11, 12, 1989 – JACOB K. JAVITS CONVENTION CENTER NEW YORK CITY
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Title

Company

Address

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PLEASE CHECK ONE BOX IN EACH CATEGORY, EXCEPT WHERE INDICATED:

Job Function:
- 1 ☐ Architect
- 9 ☐ Lighting Designer
- 15 ☐ Engineer
- 16 ☐ Building/Plant Engineer
- 11 ☐ Interior Designer
- 5 ☐ Contractor/Developer
- 19 ☐ Representative
- 13 ☐ Facility Planner
- 14 ☐ Facility Manager
- 24 ☐ Sales
- 99 ☐ Other _____

Company Products/Services
- 2 ☐ Architecture
- 72 ☐ Engineering Firm
- 1 ☐ Interior Design Firm
- 73 ☐ Lighting Design Firm
- 42 ☐ Educational/ Institutional
- 41 ☐ Government
- 40 ☐ Manufacturing
- 99 ☐ Other _____ _____

Job Title:
- A ☐ Owner
- C ☐ Partner
- D ☐ President
- E ☐ Vice President
- F ☐ Director
- H ☐ Buyer
- I ☐ Manager
- J ☐ Specifier
- Z ☐ Other _____

Individual/Company Association Membership (check two)
- 1 ☐ IESNA
- 2 ☐ IALD
- 4 ☐ AIA
- 5 ☐ IBD
- 6 ☐ ASID
- 7 ☐ BOMA

Number of Employees in your Firm:
- 1 ☐ 1-10
- 2 ☐ 11-50
- 3 ☐ 51-100
- 4 ☐ 101-200
- 5 ☐ Over 200

Have attended this show most recently in:
- H ☐ 1983
- J ☐ 1985
- K ☐ 1986
- L ☐ 1987
- M ☐ 1988
- Z ☐ Have never attended this show previously

PLEASE CHECK APPROPRIATE BOXES (Note: Attendees who register for seminars, Preview of Products and/or the Evening at the Seaport will automatically receive a badge for the Exhibit Hall)

A ☐ $10.00 Entrance to the Exhibits for all three show days ($15.00 on site)

WEDNESDAY, May 10
- B ☐ $20.00 Opening Breakfast/Keynote Address (9:00 am)
- C ☐ $30.00 Preview of Products (1:00 pm)

Fee for individual seminars ($35.00 on-site). **$30.00** Check the seminars you are planning to attend.
- D ☐ 101 Using Color as Light (11:00 am)
- F ☐ 102 Lighting the Contemporary Workplace (3:00 pm)

THURSDAY, May 11
- G ☐ 201 Cost-Effective Lighting: A Guide for Owners and Designers (9:00 am)
- H ☐ 202 What is a Quality Luminaire (10:15 am)
- I ☐ 203 From Specification to Construction: A Panel Discussion on the Players and the Process (11:30 am)
- J ☐ 204 Contractor Session (2:30 pm)
- K ☐ 205 Computer Lighting Analysis (3:00 pm)

FRIDAY, May 12
- M ☐ 301 Basic Lighting Controls—A Guide for Architects and Interior Designers (9:00 am)
- N ☐ 302 Lighting for Historic Preservation Projects (10:15 am)
- O ☐ 303 Using Theatrical Techniques in Architectural Lighting (1:00 pm)
- P ☐ 304 Retail Lighting as an Aid to Sales (2:15 pm)
- Q ☐ 401 DLF Workshop-Putting Together a Lighting Design (2:00 pm) **$60.00**
- R ☐ ASID Workshop-Project Management (9:00 am) **$80.00**
- S ☐ An Evening at the South Street Seaport **$70.00**
- T ☐ SPECIAL PACKAGE PRICE—Includes entrance to 11 seminars, Exhibition, Opening Breakfast and Preview of Products. **$340.00**
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Mail this form no later than April 17, 1989 to: National Expositions Company, Inc., 15 West 39th Street, New York, N.Y. 10018.

Do not mail this form after April 17, 1989. On-site registration will begin at 8:00 am daily.

REFUND POLICY
Cancellation of seminars will be accepted if received in writing, postmarked by April 17, 1989. Expo only, breakfast, and the Evening at the South Street Seaport tickets are non-refundable.

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1-800-221-3531 (in NY, 212/473-4688) M-F, 9am-5pm, est or fax us at : 212/995-5644.
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_____	S DBL/TWN	_____	

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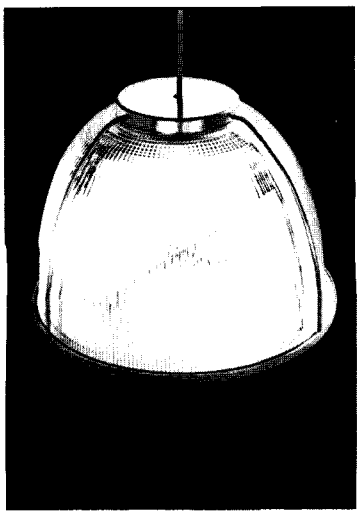
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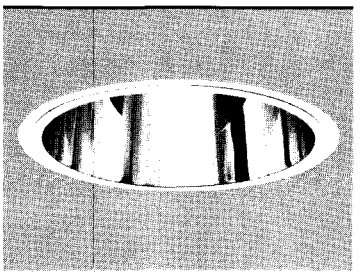
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Phone: _____ Date _____



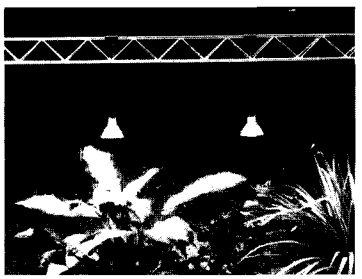
Spero Lighting
A 16" x 12" dome acrylic prismatic reflector called Brilliante comes in a range of styles, finishes, and colors and weighs four pounds.
Circle 206 on reader service card



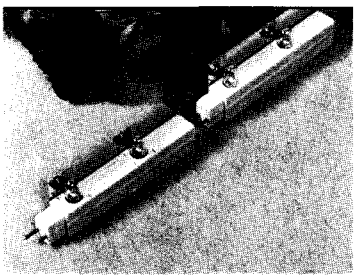
Staff Lighting
A new optical system for fluorescent downlighting eliminates the rainbow or iridescent effect from compact fluorescent luminaires. The Polyquad Series joins the Quadoptics collection.
Circle 207 on reader service card



Sylvania
The MultiKat fixture may be specified with variety of beam patterns, including rectangular or round. High pressure sodium lamps or double-ended metal halide lamps are available.
Circle 208 on reader service card



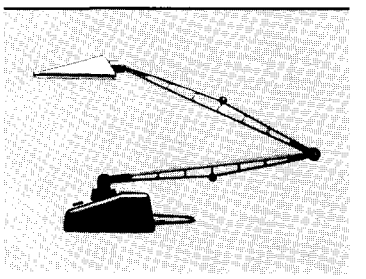
Targetti Sankey
Low-voltage display and decorative lighting called Structurella consists of miniature extruded-aluminum three-dimensional frames that are finished in satin chrome.
Circle 210 on reader service card



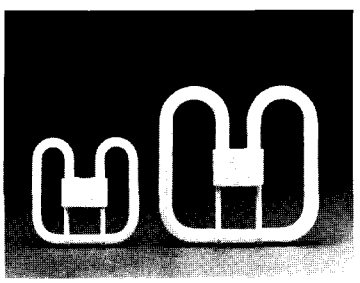
Task Lighting
Lumere modular lighting system is an incandescent, low-voltage, flexible lighting concept designed for use under cabinets, in custom wall units, or as radius curves and corners.
Circle 209 on reader service card



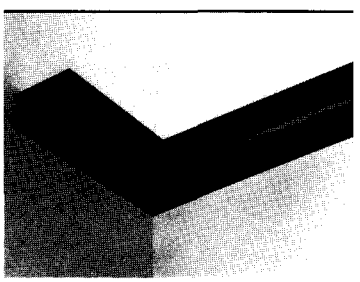
Tech Lighting
The Ziggurat wall fixture for residential and commercial applications is offered in three sizes, in either white- or rose-frosted glass.
Circle 211 on reader service card



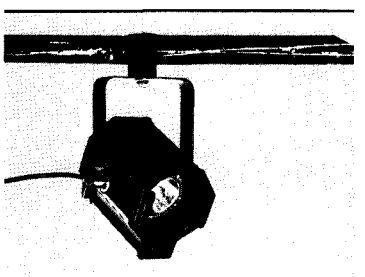
Tekna Design Group
A low-voltage, portable halogen lamp called Statis™ features fully adjustable arms and shade, twin insulated suspension cables for balancing, and a dual intensity switch.
Circle 212 on reader service card



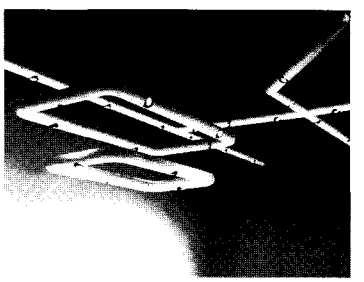
Thorn Lighting
2D compact fluorescent lamps may be specified in 16-watt and 28-watt versions in several colors.
Circle 213 on reader service card



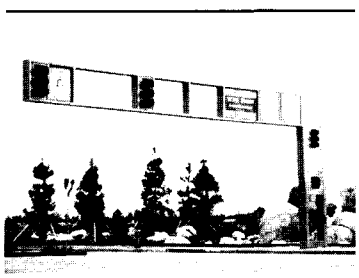
3M
Scotch-brand optical lighting film, a new, prismatic thin film, permits the "piping" of light over distances for even illumination and separates heat from the light source.
Circle 214 on reader service card



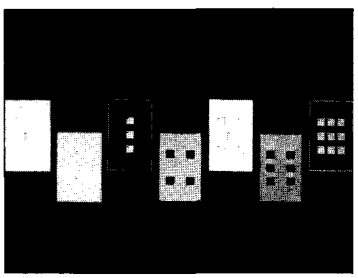
Times Square Lighting
Accessories for the C3M light include barndoors, hoods, and color media or glass filters. C3M utilizes R20, designer 16, and, with modifications, 12-volt MR16 lamps.
Circle 215 on reader service card



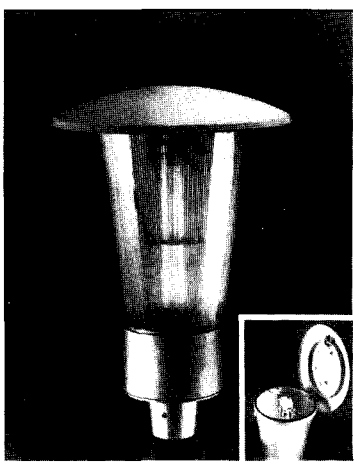
U.S. Power Beam
Inner Space uses aimable MR-16 lampholders that are recessed in rotatable 3-inch diameter tubing. Various lamp centers in contemporary and hi-tech styling may be specified.
Circle 216 on reader service card



Valmont
Cityscape street furniture incorporates light poles, traffic signal poles, cross walk signals, and other traffic/pedestrian signage into one structure.
Circle 217 on reader service card



Vantage Controls
Designer control stations, available in several finishes, can accommodate up to nine functions in a single gang electrical space.
Circle 218 on reader service card



Voigt Lighting
The Post-Up lighting unit is an energy-efficient, post-mounted unit that slips over a three-inch OD Tennon. The vandal-proof unit can be used with low pressure sodium and other lamps.
Circle 219 on reader service card

LIGHTING WORLD INTERNATIONAL Announces Greater Opportunities for Growth in 1990

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Focus your marketing efforts to reach active, high-volume buyers from the Midwest and West Coast.

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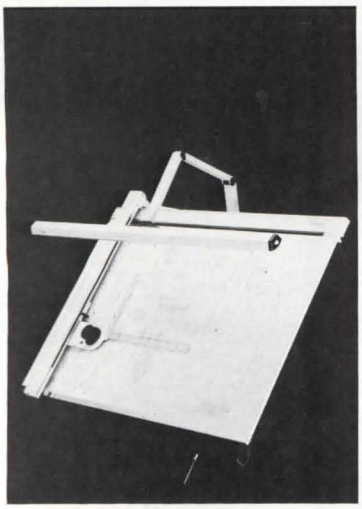
LOS ANGELES • L.A. Convention Center

October 18-20, 1990
Los Angeles Convention Center

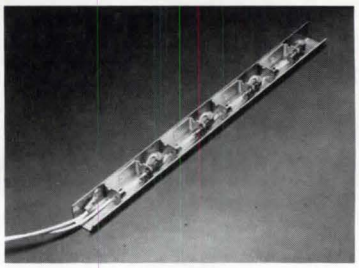
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The International Association of Lighting Designers

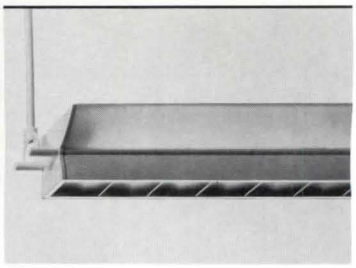
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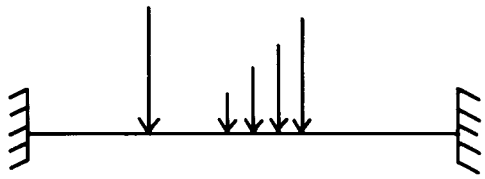
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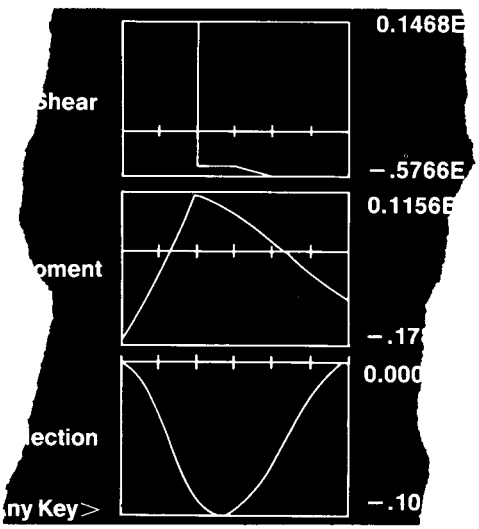
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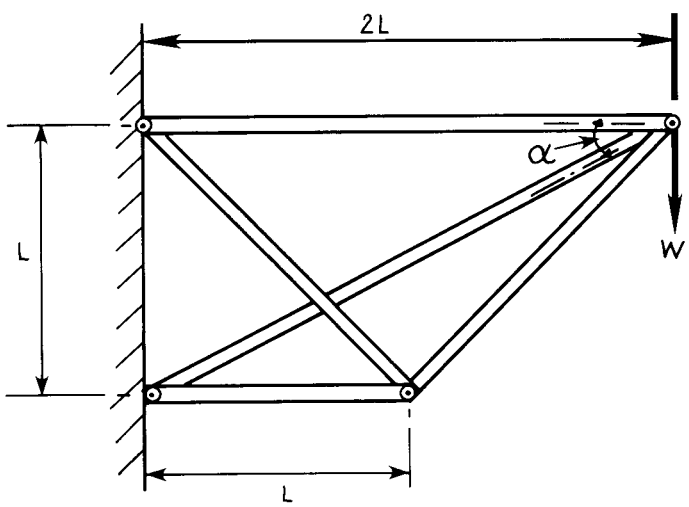
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LIGHTING WORLD INTERNATIONAL is the largest trade show in the United States dealing specifically with the many aspects of architectural, industrial, commercial, institutional and decorative lighting. It is an international event designed to facilitate the exchange of information and the transaction of business within the industry.

LIGHTING WORLD INTERNATIONAL is open to all professionals active in the industry including architects, lighting designers, consulting engineers, building and plant engineers, interior designers, contractors and developers, facility planners and managers, distributors, manufacturers, representatives, educators and the working press. Children under the age of sixteen will not be admitted to the exhibition.

All seminars and workshops will take place on the first floor of the Jacob K. Javits Convention Center. Registration fees for seminars and workshops vary. Please consult the registration form for fee schedule.

Exhibit Hours

Wednesday 10:30 a.m.–7:00 p.m.
Thursday 10:00 a.m.–7:00 p.m.
Friday 10:00 a.m.–5:00 p.m.

Registration

Registration will take place in the Crystal Palace of the Jacob K. Javits Convention Center, 34th Street and 11th Avenue.

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Wednesday 7:30 a.m.–7:00 p.m.
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Friday 7:30 a.m.–5:00 p.m.

A badge allowing entrance to the exhibition for all three show days is $15.00.

Badges

Where the information has been furnished, attendees will be provided with a color coded badge indicating their occupation. The coding is as follows:

Architect	Blue
Lighting Designer	Brown
Interior Designer	Green
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Contract/Developer	Purple
Representative	Orange
Facility Planner	Yellow
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Offices

The Show Management office will be located on the fourth floor of the Convention Center in Room 4B1. Information regarding LIGHTING WORLD INTERNATIONAL will be available throughout the show.

Press Room

Working press are invited to make full use of the Press Room located on the fourth floor of the Convention Center in Room 4B2. Personnel will be on hand to assist qualified members of the press in their coverage of Lighting World. Press Room hours:
Wednesday 8:00 a.m.–7:00 p.m.
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NEW FROM BIRKHÄUSER

Santiago Calatrava

Engineering Architecture

Edited by **Werner Blaser**
with contributions by Kenneth Frampton and Pierluigi Nicolin

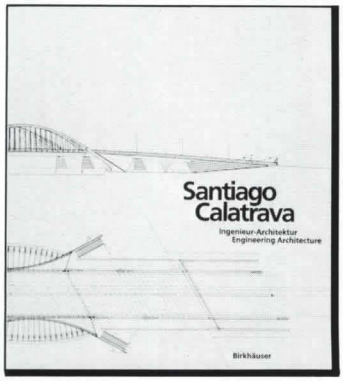
This book is a comprehensive study documenting the work to date of Santiago Calatrava, Engineer-Architect, whose spectacular projects and constructions are attracting world-wide attention.

Born in Valencia in 1951, Calatrava can boast of 22 highly acclaimed projects after only 10 years' professional practice. Calatrava aims at integrating the art of engineering and architecture and uses one to enhance the other. His work ranges from engineering architecture to architecture and interior decoration, and to design as a work of art.

"The nature of his work escapes any accepted notion of building practice. Neither solely an engineer nor an architect, and, at the same time, more than adequately qualified as both, Calatrava perpetrates designs that assert themselves as challenges to both professions."
—**Kenneth Frampton**

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Part Three Bridges, Pedestrian Bridges
Appendix

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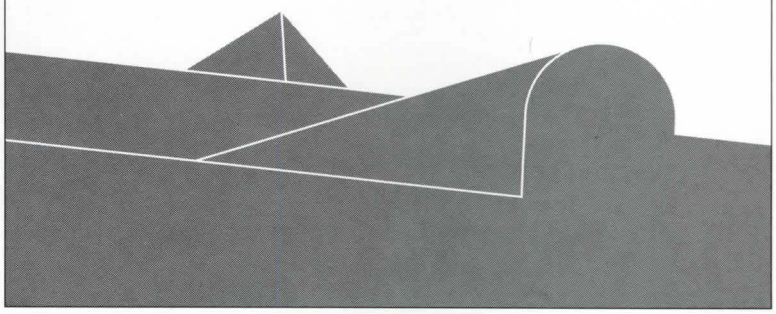
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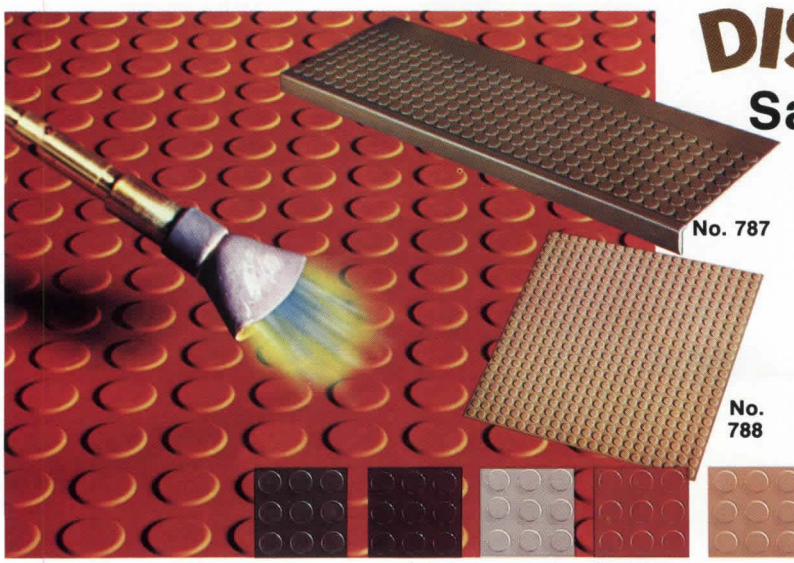
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On the inside, Trusswall offers a customization limited only to the imagination. The two-piece construction allows the exterior finish to mix or mate with the building exterior while the interior chords can complement the interior attitudes. The color palette of Fluropon® finishes suggests even more design alternatives.

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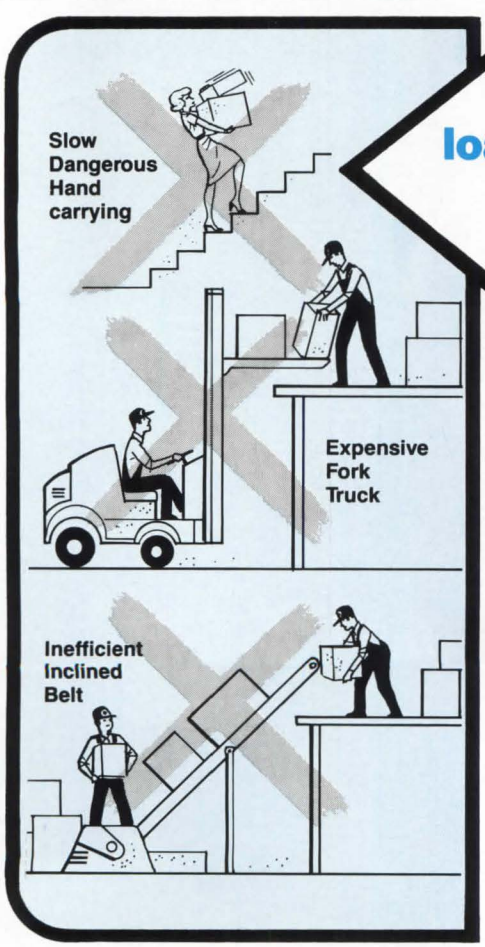


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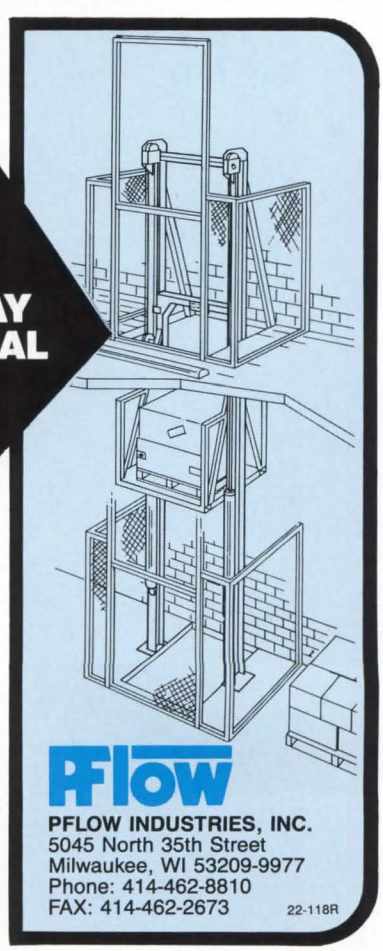
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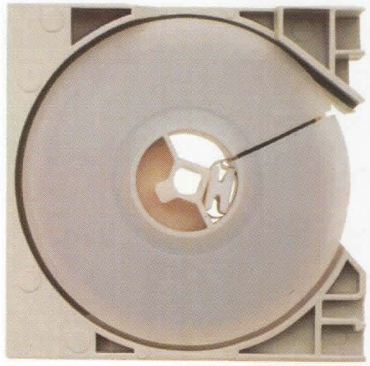
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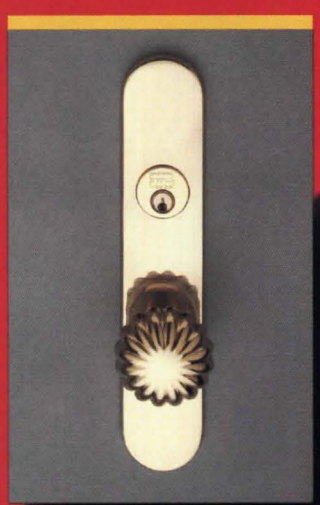
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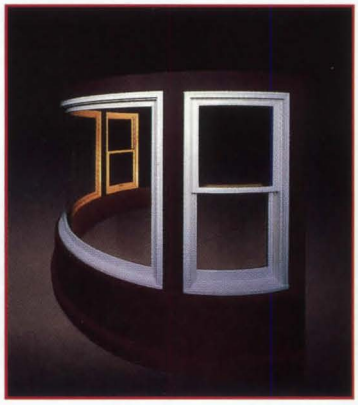
The Alternative in Elegant Design

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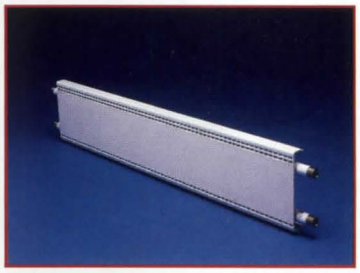
New Products and Literature



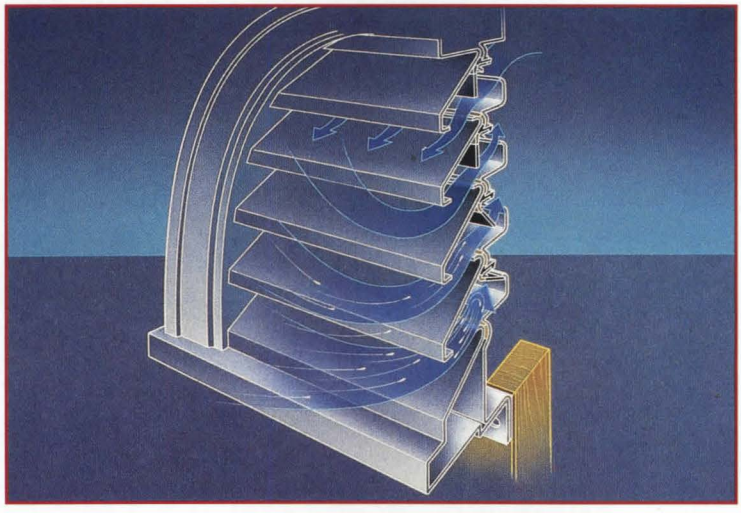
Fluted wall covering called Corrugated Flexline is offered in standard 12″ x 96″ panels. Beaded-Edge Cirrus, an addition to the Travertone family of ceiling products, comes in 24″ x 24″ panels and features a wood detail around the edges. Armstrong.
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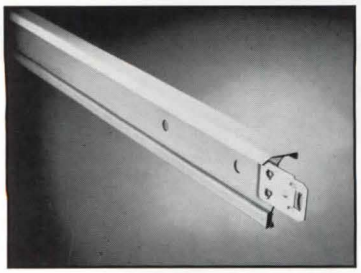
Curved glass windows are designed for new construction and historic renovation projects. Six-foot radius single hung models are offered in nine standard sizes. Complementary picture units are available in 10 sizes. Marvin Windows.
Circle 224 on reader service card



Baseboard hot-water radiators called Vanpan™ are compact, low-profile, 1″ x 5⅜″ units. The thermodynamic design and low-temperature circulating fluid allow the radiators to deliver heat by radiation rather than convection. Danex.
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New high-performance louvers are designed to reduce wind-blown water infiltration. The air chambers circulate air so that water droplets separate from the air stream and drain away through the slot and weep holes at the base. The louvers are available in round, octagon, half-round, and round-top styles. Webb Manufacturing.
Circle 225 on reader service card



An exposed grid ceiling system called Novara 3900 Designer Ceiling is a three-dimensional beveled design that measures ¾ inch wide and comes in a selection of 100 colors.
Chicago Metallic.
Circle 227 on reader service card



Glass room additions featuring 6½-foot-wide glass bays give a wide open atrium look to Fenestra®. MX-R™ insulation roof panels reduce solar heat gain and filter out ultraviolet rays.
English Greenhouse Products.
Circle 228 on reader service card

Swimming pool tiles that are frost-proof and designed for the inside perimeters of exterior and interior pools are discussed on three color information sheets. Each of the two colors of tiles is offered in a wide selection of letters or numbers. Custom wording and symbols may be specified.
United States Ceramic Tile Co.
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Custom architectural millwork is available in any size, shape, or wood species. Custom doors, stairs, mantels, mouldings, casework, and other millwork are also available.
Kentucky Millwork.
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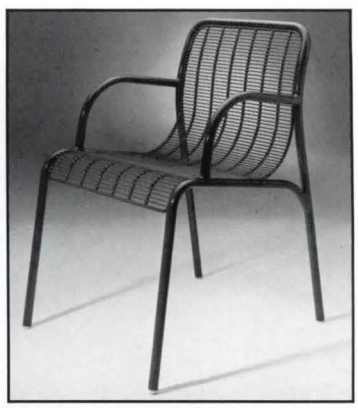


A new roofing material called Dura Ridge has a saw-tooth profile and can be applied to ridges, hips, and rakes on all types of asphalt shingle roofs. It can also be used to customize standard shingle roofs.
Ridge Manufacturing.
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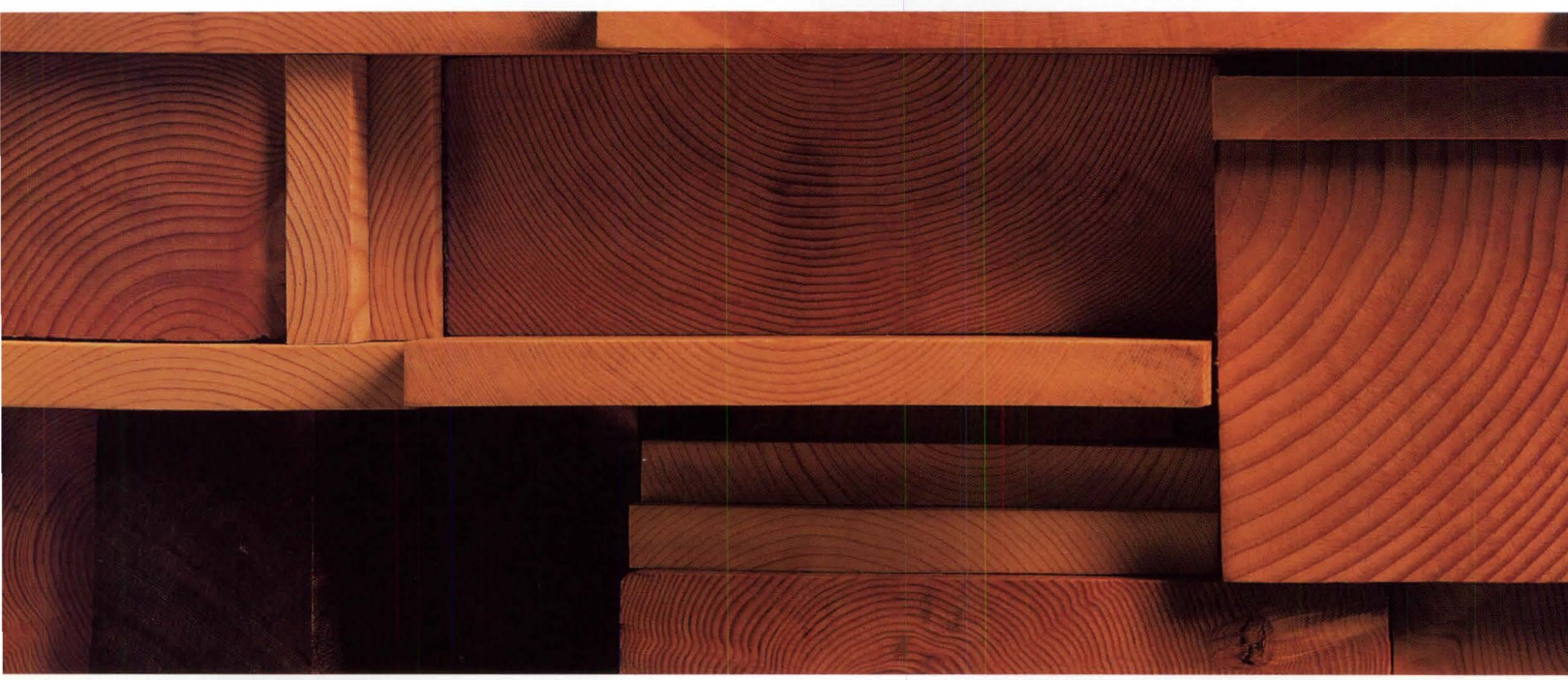
New stone textures have been added to the complete line of stone and marble products. The textured marble can be used alone or in combination with polished or honed finishes.
Solnhofen Natural Stone.
Circle 234 on reader service card

A new composite building panel combines a solid thermoplastic compound core with two sheets of aluminum. Reynobond™ FR Panels can be used in new construction or renovation applications such as curtainwalls and column covers. Reynolds Metals.
Circle 235 on reader service card

A sprinkler head called Phantom is an adjustable, concealed unit. It is approved for light hazard, ordinary hazard Group I, and ordinary hazard Group II occupancies. Cover plates are offered in 2¾″ x 3¼″ diameters in chrome, white, black, brushed zinc, antique brass, or polished brass. Star Sprinkler.
Circle 236 on reader service card



A metal chair called Traverse may be specified with or without armrests, and with either a grid or a perforated metal seat. The chair, designed for use in indoor food courts or outdoor courtyards, comes in nine colors.
LFI/Landscape Forms.
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WHEN YOU WERE TAUGHT MULTI-STORY CONSTRUCTION SOME IMPORTANT MATERIAL MAY HAVE BEEN LEFT OUT.

Western Wood.

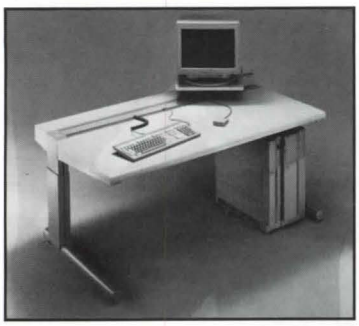
Chances are, just the mention of wood makes you think "house." That's the way most designers have been taught to think.



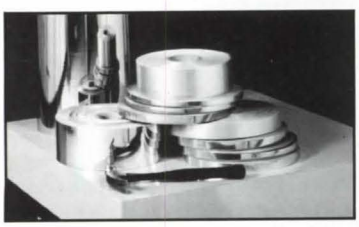
Wood frame structures are cost-effective in high density areas and difficult terrain.

But the fact is, virtually any multi-story building up to four stories can be framed in Western Wood. It always could be. (The major building codes have allowed it for years.)

And not just in the West. Award-winning wood frame buildings are going up all over the country. In projects like

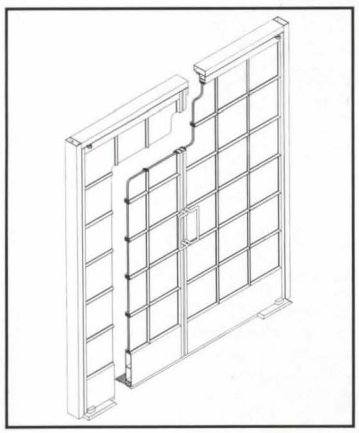


An engineering workstation called AnthroBench features a space-saving arm, a cord-management system, and height adjustments from 25 inches to 29 inches. Additional equipment can be added. Anthro.
Circle 238 on reader service card



Metallic plastic trim offered in a range of sizes is impact-resistant, and available in standard widths of .020 and .030 inches. Finish options include polished or brushed aluminum, gold, or brass. Advanced Technology.
Circle 239 on reader service card

Restoration of floors containing marble, granite, travertine, agglomarble, or terrazzo is made easier with the new CCG 1700 Cristallizer machine, which features a 17-inch diameter interchangeable head with center water feed.
VMC Technical Assistance.
Circle 240 on reader service card



Casement windows from the Roto-Operated, Project-Out series complement the 8300 series of historical window framing systems. The windows emulate historical wood and steel fenestration with muttins and insulated glass. Custom Window.
Circle 241 on reader service card



Glass handrails have ½-inch tempered glass and are available in clear, bronze, and gray. Bases may be specified in anodized aluminum as well as brass or stainless steel. Aluminum, brass, oak, and stainless steel handrail caps are offered. ACI Glass.
Circle 242 on reader service card

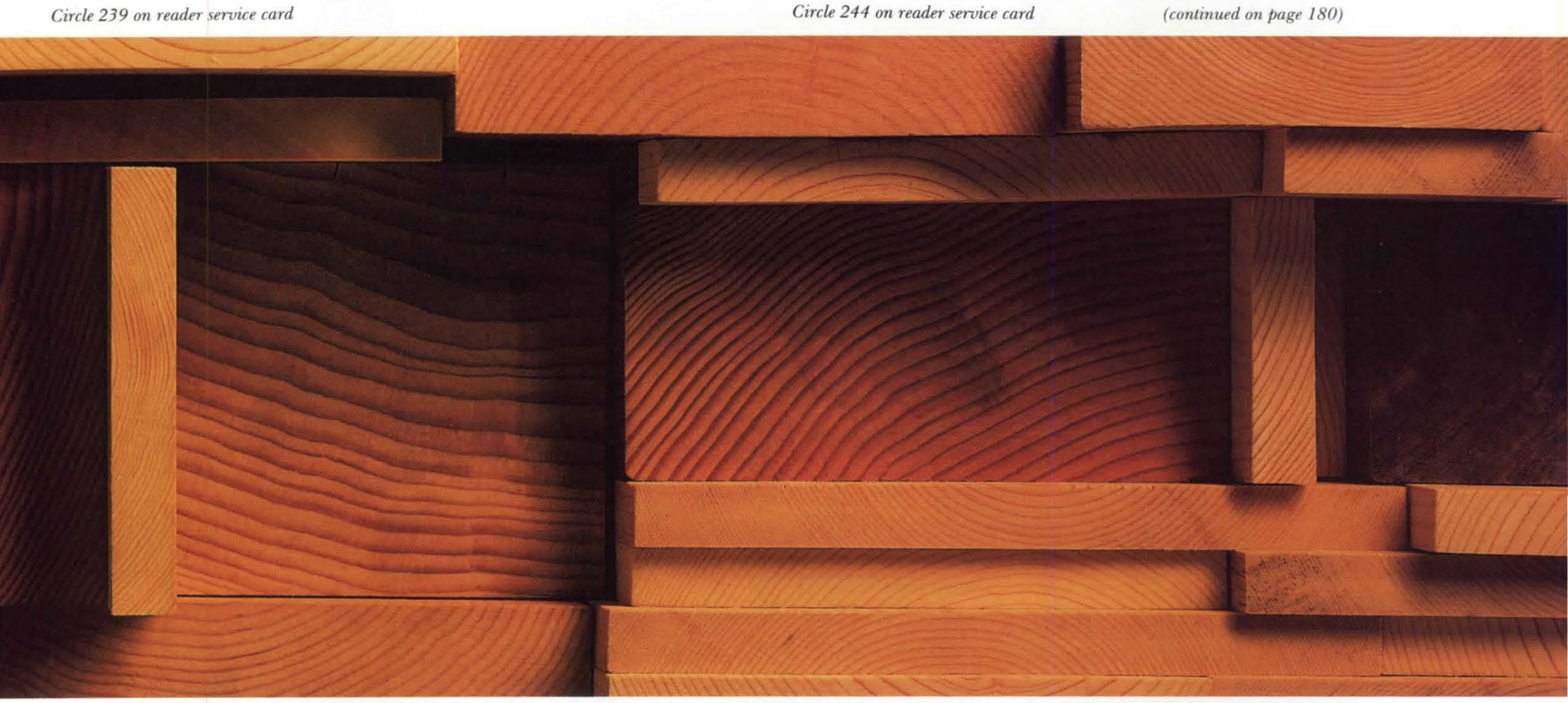
Custom door pulls are made from nylon components and feature continuous corrosion-resistant steel inserts. Thirteen colors are offered in two diameters. HEWI.
Circle 243 on reader service card

A new contract carpet called Danbury Tweeds is a heathered level loop with flecks of accent colors. Manufactured from nylon and Praxis® polypropylene, the carpet may be specified in 16 colors. J&J Industries.
Circle 244 on reader service card

Restoration glass complete with the distortions and imperfections of old glass and produced in two levels of distortion—"light" and "full"—is suitable for use as replacement windows in historic projects.
S.A. Bendheim.
Circle 252 on reader service card



An acrylic canopy system provides overhead protection against rain and sun. The system, made up of extruded aluminum framing sections and acrylic roof panels, is offered in three styles. A self-contained internal gutter system drains excess water. Alcan.
Circle 246 on reader service card
(continued on page 180)





Award of Excellence for multi-story wood design by Shen/Glass Architects, Berkeley, CA.

malls, commercial and multi-family complexes, even hotels.

That's because Western Wood species offer design flexibility that concrete and steel can't match. Not to mention lower costs, faster construction – in all kinds of weather – and better aesthetic qualities.

So before you design your next multi-story building, do a little homework on Western Wood. It's material you should know.

Mark the reader service card and we'll send you a packet on wood-frame construction – design spec's, code provisions, a case study – you name it. Or contact us directly. Reference material can also be found in Sweet's 6.1(d)Wes or The Woodbook 213-224.

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WESTERN WOOD PRODUCTS ASSOCIATION
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Win National Recognition!

The CRSI Design Award X Call for Entries.

Enter your site-cast concrete structure design in the tenth Annual CRSI Design Awards program.

If you're a registered architect, engineer or team and your structure was completed in the United States between January 1, 1987 and November 3, 1989, we want to see your entry. This is your opportunity to let the industry know about your accomplishments.

Endorsed by the American Institute of Architects, the Concrete Reinforcing Steel Institute's Design Awards honor excellence in cast-in-place concrete design achievement. Winning designs become part of local and national advertising and publicity campaigns, featuring a full-color, nationally distributed brochure, press releases and local awards program if possible. Winners of the 9th biennial competition were also honored at the 1988 AIA convention.

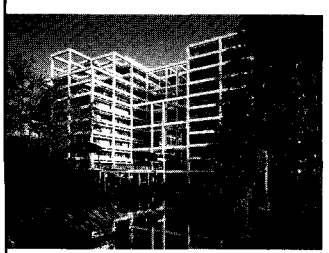
Entries are judged on aesthetic expression, engineering achievement, functional excellence and economy of structure utilizing conventionally reinforced, cast-in-place concrete. The competition is open to all registered architects and engineers submitting structures located anywhere in the United States, and completed since January 1, 1987.

Entries must be received by November 3, 1989. Requirements correspond to those of the AIA Honors Awards Program for easy submission to both programs.

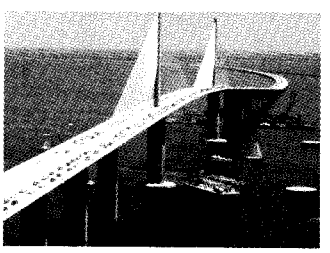
You could be one of the winning VII in CRSI Design Awards X.

So, write or call (312-517-1200) for the information and rules for submitting your entry.

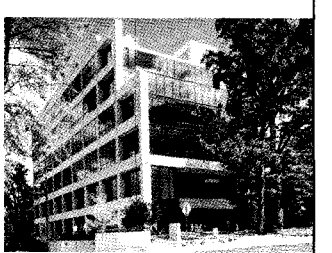
CRSI **Concrete Reinforcing Steel Institute**
933 N. Plum Grove Road
Schaumburg, Illinois 60173-4758
312/517-1200



The Terraces at Perimeter Center, Atlanta, Georgia. Architect: Skidmore, Owings & Merrill, Chicago, Illinois.



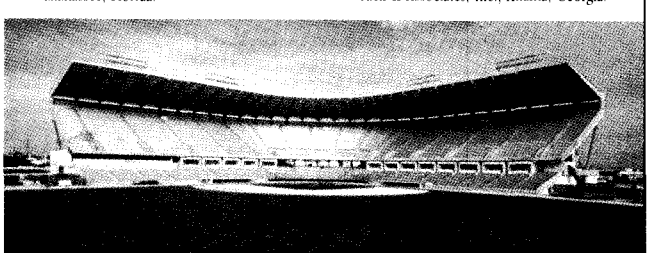
Sunshine Skyway Bridge, Tampa Bay, Florida. Architect: Figg & Muller, Tallahassee, Florida.



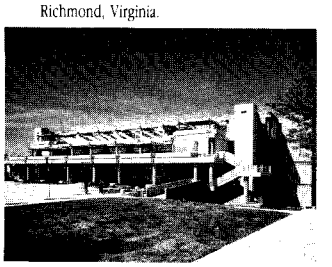
1315 Peachtree, Atlanta, Georgia. Architect: Thompson, Ventulett, Stainback & Associates, Inc., Atlanta, Georgia.



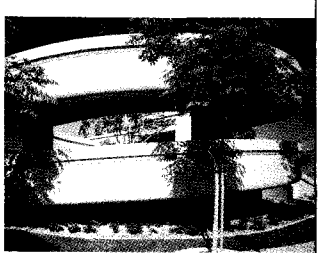
Ameriwest Financial Center at Park Square, Albuquerque, New Mexico. Architect: Holmes & Narver, Inc., Albuquerque, New Mexico.



The Diamond, Richmond, Virginia. Architect: Baskervill & Son, P.C., Richmond, Virginia.



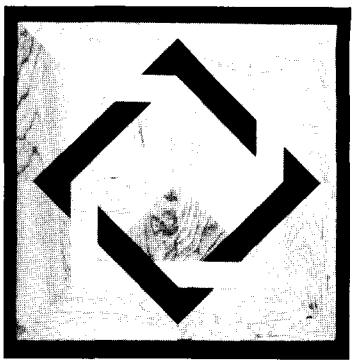
University of Utah Student Services Building, Salt Lake City, Utah. Architect: Astle/Ericson & Associates, Salt Lake City, Utah.



UCI/Campus-Drive Pedestrian Bridge, Irvine California. Architect: SGPA Planning & Architecture, San Diego, California.

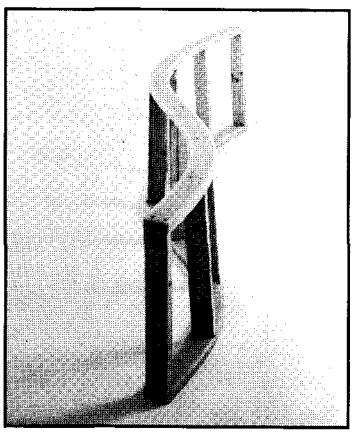
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Products *(continued from page 179)*



A new wood floor pattern called Camelot measures ¾" x 24" x 24" and can be scaled up or down to fit specific sizes. A brochure describes the modular, preassembled flooring.
Kentucky Wood Floors
Circle 247 on reader service card

Cleaning products suitable for new and historic masonry structures are reviewed in 12-minute video. Specific items discussed and illustrated include equipment, timing, correct applications, and test panels. Directions are given to minimize staining, streaking, and etching. ProSoCo.
Circle 257 on reader service card



Flexible polyurethane lumber called Billee-Bord can be shaped into any form including a curved wall, staircase, or other arched designs. The lumber can be cut, nailed, painted, and drilled with conventional woodworking equipment.
Imaginative Materials Group.
Circle 249 on reader service card

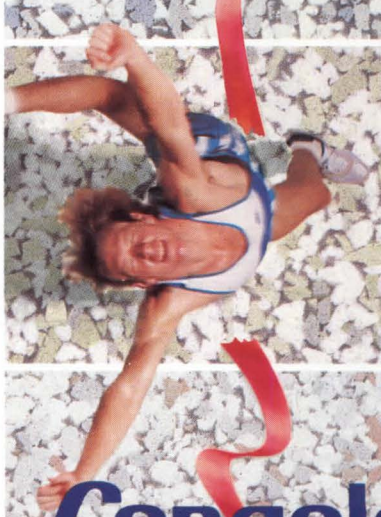
Area separation walls are the subject of a new 12-page brochure that provides technical data on I-stud, Screw Stud, and H-stud vertical fire barrier systems used for protecting adjacent units in wood frame apartments. All three easily erected systems feature Fire-ShieldR gypsum wallboard.
Gold Bond Building Products.
Circle 250 on reader service card
(continued on page 182)

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Marathon flooring shown to actual design scale.

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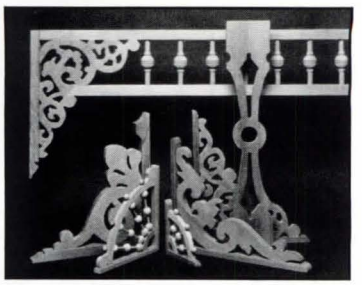
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Products *(continued from page 180)*



Victorian millwork is the subject of a new catalog which features both redwood and hardwood designs. Post finials, moldings, blocks and rosettes, and balustrades are shown in the publication. Send $2.50 to Mad River Woodworks, P.O. Box 163, Dept. PR, 1355 Giuntoli Lane, Arcata, CA 95521.

Building Materials

Solana: IBM Southlake, Village Center, Westlake/Southlake, Texas (p. 65). *Architects: Legorreta Arquitectos, Lomas Reforma, Mexico.* Precast concrete frame, garage: Featherlite. Steel studs and gypsum sheathing: U.S.G. Cement plaster: Portland Cement. Acrylic Finish: STO Industries. Windows: Guardian. Tempered glass doors: Brite Vue. Wood doors: Buell Door. Hollow metal doors: Aubertin. Overhead doors: Atlas Door. Floor surfacing: Kaibob Arizona Sandstone. Concrete pavers: Pavex. Roofing and batt thermal insulation: Owens-Corning. Tapered rigid insulation: International Permalite. Elevators: Dover. Downlights: Kurt Versen. Metal halide: Kim; Poulsen Lighting. Garage lighting: Day-Brite. Interior metal halide: Guth. Switchgear: ITE. Emergency generator: Stewart & Stevenson. Lavatories: American Standard. Plumbing fittings: Speakman. Flush valves: Sloan. Toilet stalls: Global. Washroom accessories: Bobrick. Water fountains: Haws. Chillers: York. Air handler fans: Flakt. Cooling towers: Baltimore AirCoil.

Solana: IBM Westlake, Texas (p. 65). *Architects: Mitchell/Giurgola Architects, New York.* Concrete: Texas Leehigh. Rebar: Comet Steel. Metal stud walls: Studeo. Stucco: Sto. Gypsum: Genstar. Aluminum frame windows and skylights: Olden. Aluminum door: Kawneer. Stainless steel door: Brite-Vue. Hollow metal doors: Bilt-rite. Wood doors: V.T. Industries. Truck rolling doors: Overhead Door. Pavers: Pavestone. Lay-in ceiling: Armstrong. Gypsum ceiling: *(continued on page 186)*



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Houses

A Call for Submissions

for the December P/A

■ To identify outstanding houses to be featured in the December 1989 P/A, the editors are calling for submission of residential projects that will be completed by this summer.

Eligibility

Any single-family residence *(house, house addition or renovation, apartment, guest studio)* completed during the period January 1988 through August 1989 can be submitted. Landscaping and furnishing will have to be completed sufficiently to allow comprehensive photography commencing on or about September 1, 1989. Houses previously published in P/A, Architecture, or Architectural Record are not eligible.

Submissions

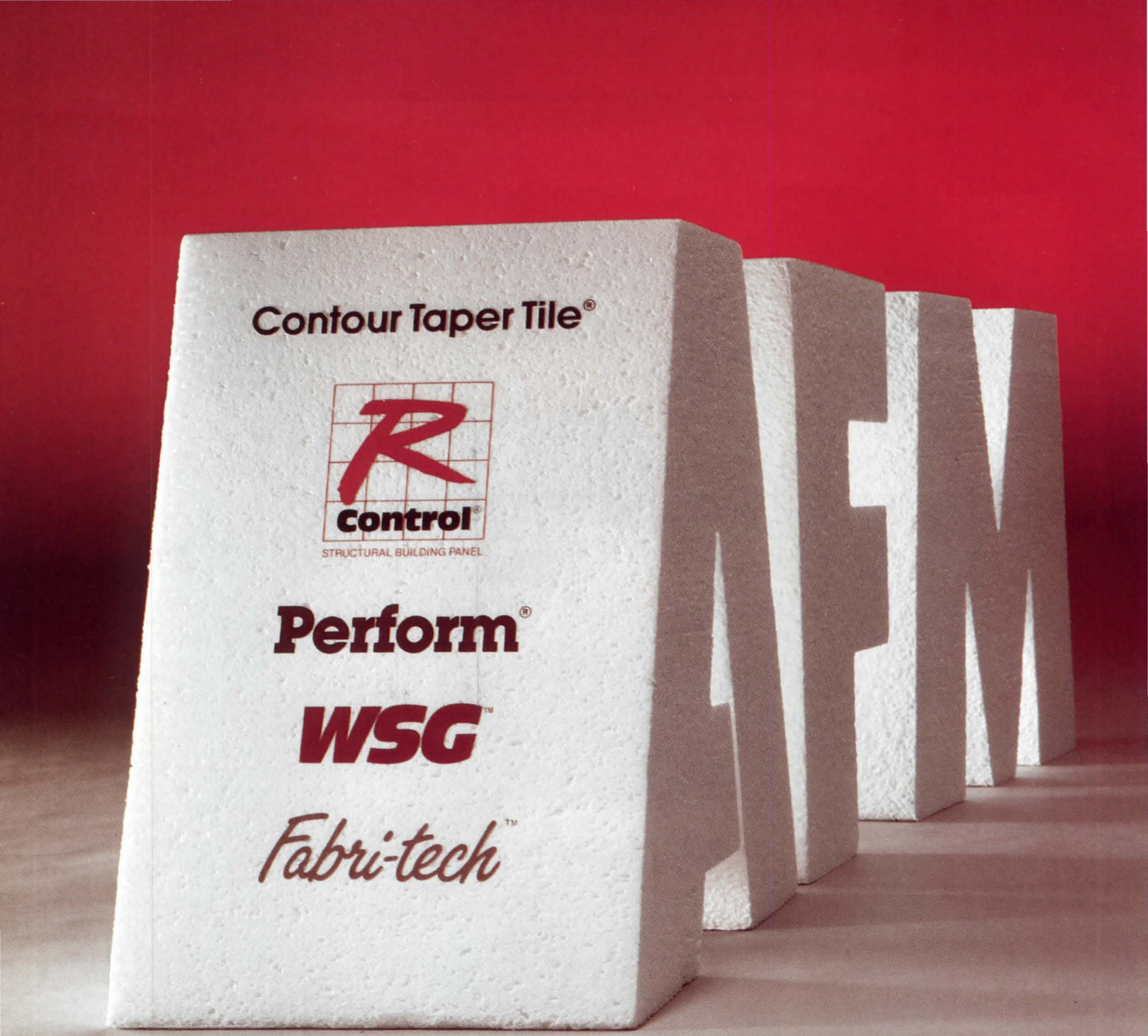
■ A one-page description of the program, site, and ideas behind the house's design. Special attention should be given to the development of the scheme and the precedents or conditions that affected it.
■ Site plan and plans of each floor. Send reduced plans, not full-size working drawings.
■ Photographs *(preferably slides, but prints accepted)* of the house, completed or near enough to completion for its design to be evaluated. Photographs need not be professional, but should be clear and numerous enough for editors to judge from them.
■ There is no limit on the number of submissions a firm can make, and there is no submission fee.

Deadline

The deadline for submissions is Wednesday, May 31. Materials must show postmark *(or receipt by other carrier)* by that date. The editors will review submissions during the month of June and notify all those selected by June 30.

Return of Submissions

Submissions not selected will be returned by July 7, provided an addressed envelope with sufficient postage is enclosed. *(alternatively, an account number for Federal Express can be attached, to allow for two-day, collect, return delivery)*. Entries without provision for return delivery will be discarded after the selection process.



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(continued from page 182)

Genstar. Asphalt roofing: Manville. Caulking: Tremco. Waterproofing: Grace. Trowel mastic: Sonneborn. Wall insulation: Owens-Corning. Roof drainage: Wade. Paint: Glidden. Stain: Olympic. Hinges: Monthard. Locksets, door closers, panic exit: Yale. Elevators: Dover. Stairs: Allied. Handrail: Berger Ironworkers. Lighting: Sterner, Lightolier. Electric distribution: Ite. Lavatories and water closets: American Standard. Plumbing fittings: Nibco. Flush valves: Sloan. Toilet stalls and washroom accessories: American Specialities. Water fountains: Oasis. Heating system: Martel. Air conditioning: Trane. Environmental controls: Johnson Control. Blinds: Mechoshade.

Charnley House Restoration, Chicago (p. 76). *Architect: Skidmore, Owings & Merrill, Chicago.* Brick: Structural Stoneware, Brann Clay Products (supplier). Custom fabricated hardware: L.J. Construction. Michael Graves sconces: Baldinger. Paint and stain, interiors: Benjamin Moore, Pratt & Lambert, Devoe. *Donors:* Table lamps: Artemide. Seating: Atelier International, Bernhardt, Brickell, GF, Herman Miller, Steelcase. Antonio Gaudi chair (B.D. Ediciones De Desino): Mr. & Mrs. Jose Juanpere Miret. Michael Graves Chair (Craftwood): G. Sonnenberg. Tigerman Chair (Knoll): Stanley Tigerman and Margaret McCurry. Venturi chair (Knoll): Venturi, Rauch & Scott Brown. Shelving: Bradford. Faucets: Brown & Miller; Chicago Faucet. Plumbing fixtures: Economy Mechanical Industries. Carpet finishing, installation: Carpet Mates. Original foyer coat closet doors: The Frank Lloyd Wright Home & Studio Foundation. Light fixtures: Galdinger. Upholstery fabric: ICF-Unika Vaev. Desks: Inland Steel Industries. Carpet: Karastan Rug Mills; Lee's Carpet. Table: Mielach Woodwork Midwest. Wright chair: National Center for the Study of Frank Lloyd Wright, Domino's Pizza Collection (loan). Marble polishing: Midwest Marble & Granite. Refinishing: A. Smiley Electrostatic Painting Systems. Intrex casegoods: Van Bergen Associates. Cabinetry: Wigand Corporation. Limestone: Hardings & Cogswell.

Commonwealth Building Lobby, Portland, Ore. (p. 90). *Architect: Soderstrom Architects, with Pietro Belluschi, Portland.* Granite exterior panels: Great

(continued on page 189)

Axis

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Axis seating has found a niche in noteworthy installations around the world since its introduction almost two decades ago. In the words of Giancarlo Piretti, its designer, "It has a simplicity that belies the inherent functionalism. I think that is why it has caught on among architects. It does everything they want, with style."

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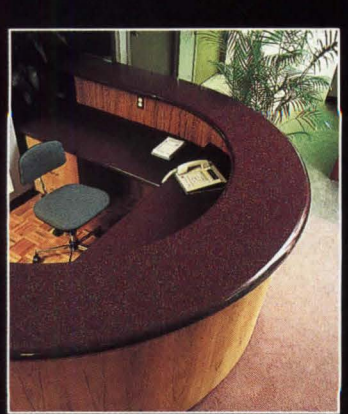
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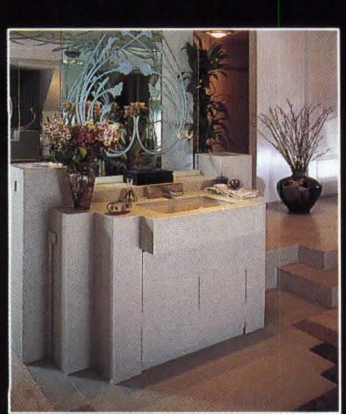
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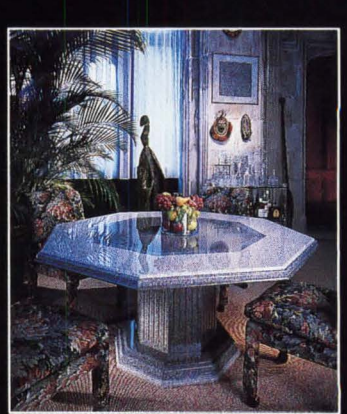
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Cobble Court, New York
Designed by Michael Love, ASID



Octagonal Table, Plexability, New York
Designed by Berkowicz/Haller



Marotta Residence, New Jersey
Designed by We-Add, New Jersey

Circle No. 317 on Reader Service Card

(continued from page 186)
Northern Granite. Glass backcoating: Dow Corning, "Opaci-Coat." Full glass entry doors: Benson Industries, "Brite-Vue." Ceramic tile: 4" x 8" Fiandre Tile, "Agata" and "Caribe." Custom snap-in aluminum ceiling panels: Ceiling Systems, Inc. Eggshell finish mural paint: Fuller O'Brien. Mural colors, wall color: Ameritone. Hardware: Schlage. Door closers: Rixon. Building directory: Apco. Concession and bank casework: Vertex Manufacturing Inc. Custom cold cathode lighting: Newman Corporation.

The Solomon R. Guggenheim Museum, New York, N.Y. (p. 82). *Architects: Gwathmey Siegel & Associates Architects, New York.* Gypsum wall board and plaster: USG. Interior wood windows: Custom Interiors, Inc. Custom art storage doors: DeJil Systems, Inc. Ceiling trim: Architectural Shapes. Fiberglass batts: Owens Corning. Track lighting: Lighting Services, Inc. Monopoints: Lightolier. Wall washers: Kurt Versen. Downlights: Lightolier. Sconces: Glashutte. Custom benches, stools, and planters: Custom Interiors, Inc. Latex paint: Benjamin Moore. Concealed hinges at art storage doors: Soss. Exit signs: McPhilben.

R.M. Schindler House, West Hollywood, Calif. (p. 86). *Architects: Architectural Museum Services/Peter Snell, Los Angeles.* Foundation: cast-in-place concrete. Framing: custom-milled redwood. Walls: slab-tilt concrete. Floors: exposed waxed concrete. Roof: tongue-and-groove redwood sheathing on exposed beams. Windows: cylinder glass. Entrance doors: redwood planks. Interior doors: redwood frames with pressed fiber board infill. Roofing: four layers of fiberglass composition roofing with 60 pound Dutch Glass Roof System. Urethane board insulation: Celotex. Tapered insulation: International Permalite. Redwood sealer: Watco.

City Club of San Francisco (p. 94). *Architects: Patrick McGrew Associates, Architects, San Francisco.* Lounge and women's restroom floors: travertine. Paint: Fuller-O'Brien. Lighting: Halo. Torchieres: Koch + Lowy. Carpeting: Charleston. Toilet stalls: Glibal. Restroom accessories: Bobrick. Fabrics: Momentum Textiles.

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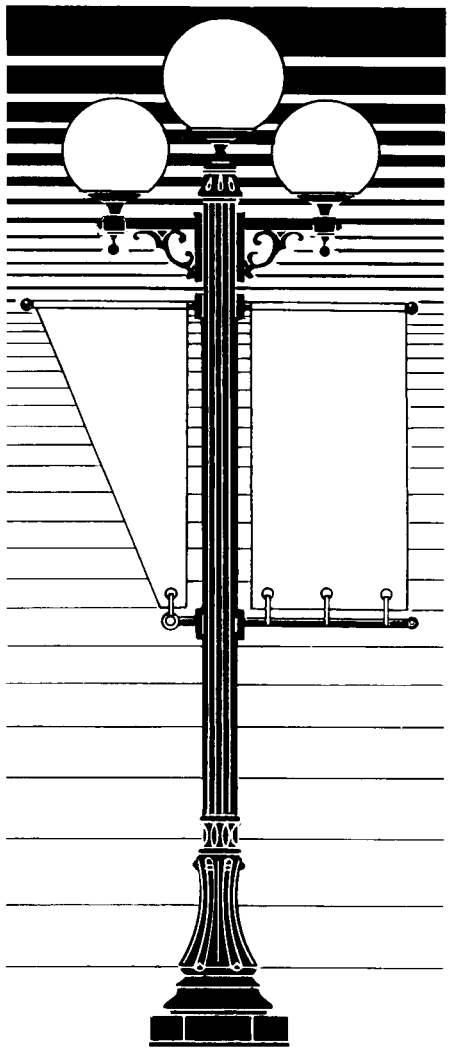
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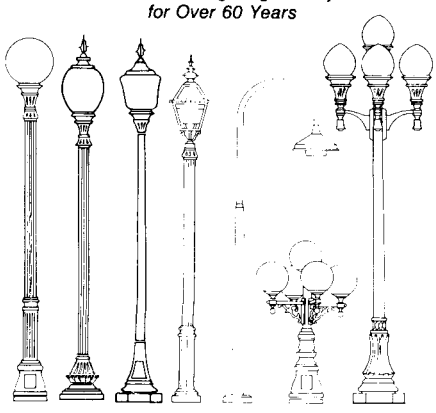
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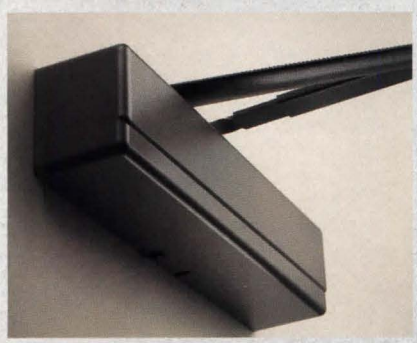
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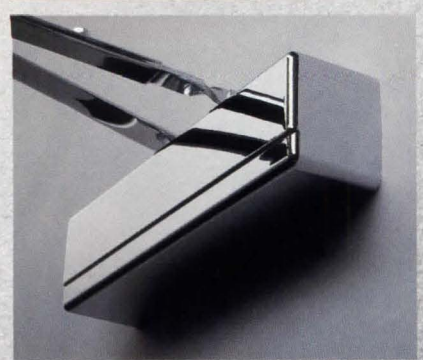
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The Department of Architecture and Landscape Architecture has a student body of 300 in the Architecture and Landscape Architecture programs. North Dakota State University is part of the Tri-College program including two universities and one college with over 20,000 students. North Dakota's full-time student body totals 10,000 students.

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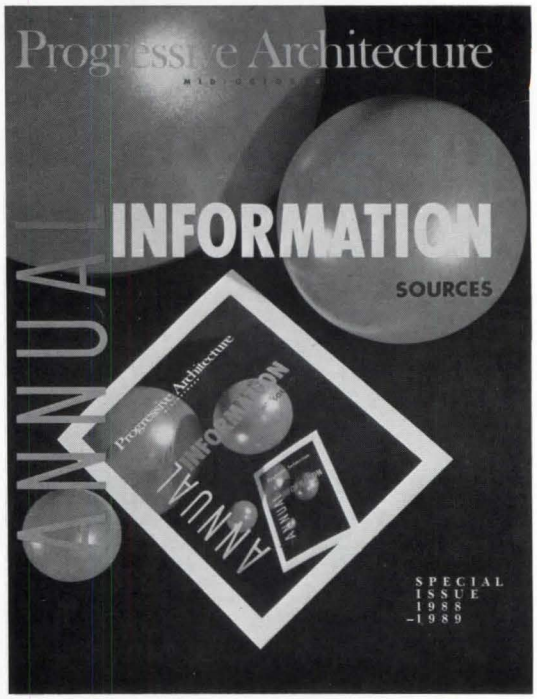
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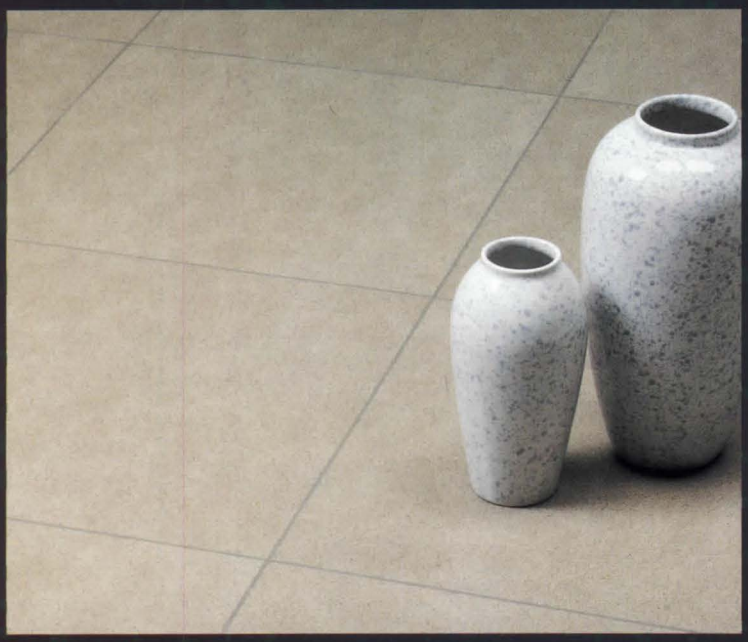
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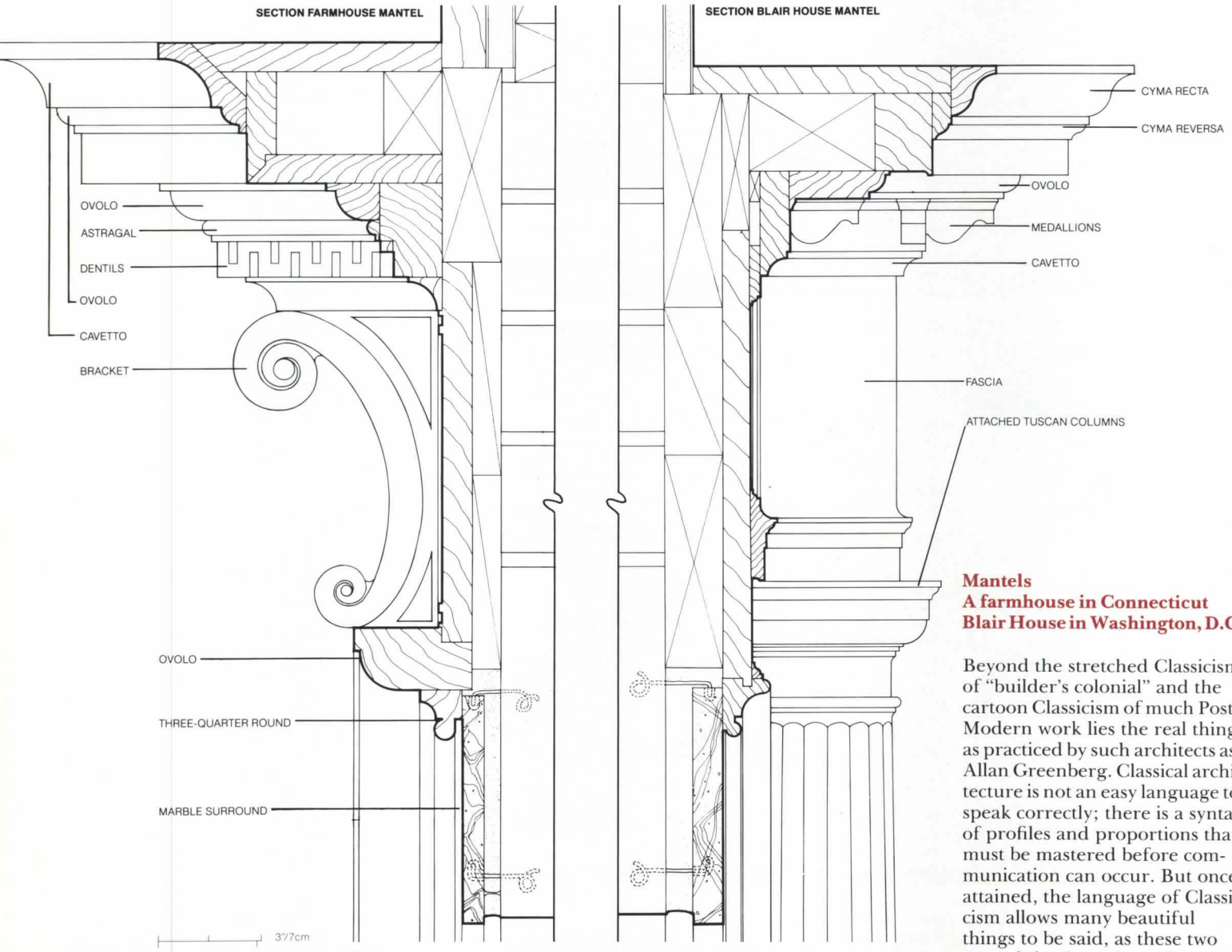
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A farmhouse in Connecticut
Blair House in Washington, D.C.

Beyond the stretched Classicism of "builder's colonial" and the cartoon Classicism of much Post-Modern work lies the real thing as practiced by such architects as Allan Greenberg. Classical architecture is not an easy language to speak correctly; there is a syntax of profiles and proportions that must be mastered before communication can occur. But once attained, the language of Classicism allows many beautiful things to be said, as these two mantels by Greenberg show. The farmhouse mantel has end brackets and a pattern of interlocking circles in its frieze. Above them rise a dentiled cornice, with ovolo and cavetto moldings, that breaks out over the brackets. The Blair House mantel is at once plainer and yet more elaborate. Tuscan columns support a paneled fascia and a medallioned cornice, whose angled corner medallions are a Greenberg signature. Here, the ovolo and cavetto moldings are narrower, while cyma recta and reversa profiles give the mantel a more delicate feel. Together, these two end-supported mantels suggest the many variations possible on just one theme of Classical architecture. ■

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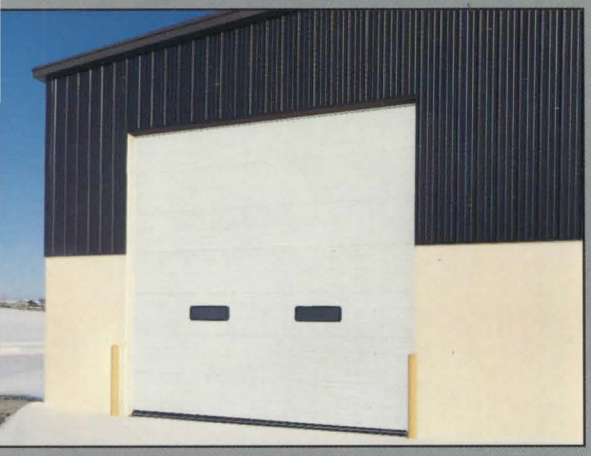
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